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Welcome to the Faculty of Medicine.

I am delighted that you have chosen to study at the Universiti Malaya. The Faculty of Medicine Universiti Malaya prides itself in being the oldest medical school with the largest post graduate clinical and research based post graduate programs in the country.

Whether you are pursuing a Clinical Master's in Medicine, or a graduate research programme, you are now part of the largest Faculty in the University, joining over 2848 full-time and part-time undergraduate and postgraduate students, including more than 400 postgraduate researchers.

To those pursuing a Clinical Master's programme, University Malaya Medical Centre, with its vast resources, will provide you with a rich experience of hands-on training in clinical medicine. The large number of highly experienced and motivated academicians and specialists will help ensure that you will be well-prepared for your years ahead as a specialist.

For those undertaking a research based postgraduate programme you will join in a long tradition of research undertaken at the Faculty of Medicine that has made major contributions to the understanding of disease and conditions such as cancer, infectious diseases, and diabetes and improving patient care and outcomes and to public health. We pride ourselves in providing the highest quality laboratory and study facilities for our students and postgraduate researchers. The Faculty offers a stimulating study and research environment with recent investment in the state-of-the-art equipment and research facilities.

Through the years the academic staff of the Faculty of Medicine has developed a vast network of international collaborators who can provide a further opportunities to enrich your learning and research experience.

I wish you every success and enjoyment in your time here, and warmly welcome you to the Faculty.

PROFESSOR DR. APRIL CAMILLA ROSLANI

Dean

Faculty of Medicine



Welcome to the Faculty of Medicine. As you join us in this academic session, you will find that the typical transition period that occurs upon introduction to your postgraduate life will be a unique one. In these unprecedented times, it is imperative that we are sensitive to your needs by focusing on increased quality communication; and ensure an enriching experience by providing support, flexibility and safety in a comfortable practice, learning and training environment.

As you journey through your studies in the largest faculty at the Universiti Malaya, there will be many opportunities to learn new skills, meet new people and experience a range of learning environments that we offer within the many programmes here.

Our goal is to prepare you as our next generation of specialists, scientists, academicians and industry practitioner with rewarding careers. This will set the foundation for us all to be involved in the building of a healthy society through education, discovery, collaboration and research.

As healthcare and other industry needs have changed, we place emphasis on curriculum design that is relevant to the current times. Since before the pandemic, we have explored the various platforms for the delivery of our programs and will continue to facilitate ways to ensure that your training is progressive and in tune with our changing times. In keeping with the faculty's strategic plan, we aim to ensure our postgraduate programmes are relevant and of high quality; so I plan to create many opportunities for us to interact closely. We hope your time with us will drive you into the pursuit of excellence that is fortified by positive social values so you may go forth and serve your community and population productively.

I am looking forward to meeting you. Welcome to the Faculty of Medicine.

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Associate Professor Dr Farizah bt Mohd Hairi MBBS (Mal), MSc (Wales), MPH (Mal), MPH (Health Services Mgt) (Mal), DSc (Public Health) (NL)

Associate Professor Dr Mas Ayu Said MBBS (Mal), MPH (Mal), MPH (Epid) (Mal), PhD (Mal)

Associate Professor Dr Nik Daliana binti Nik Farid MBBS (Adelaide), MPH (Mal), DrPH (Mal)

Associate Professor Dr Rafdzah binti Ahmad Zaki MBChB (Liverpool), MPH (Mal), DrPH (Mal)

Associate Professor Dr Tharani Loganathan MD (USM), MPH (Mal), DrPH (Mal)

Medical lecturers:

Dr Maslinor Ismail MD (UKM), MPH (Mal), MPH (Family Health) (Mal)

Dr Lim Yin Cheng MBBS (UM), OHD (NIOSH), CMIA (NIOSH), MPH (UM), DrPH (UM)

Dr Rama Krishna a/l Supramaniam MD (University Gadjah Mada), LFOM (Ireland), MPH(Malaya),

DrPH(Malaya)

Senior Lecturers:

Dr 'Abqariyah binti Yahya BSc (Hons) (Stats.) (UKM), MSc (Stats.) (UKM), PhD (MedSc) (Karolinska)

Dr Lim Sin How BSc. Biochemistry (NUS), MSc. Health Care Administration (University of New Haven), PhD (University of Pittsburgh)

Dr Nur Afiah Mohd Salleh BSc. (UM, Kuala Lumpur), MPH (LSHTM, London), PhD (UBC, Vancouver)

Dr Nithiah Thangiah BSc (UMT), MAppStats (Malaya), PhD (Malaya),

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GENERAL SURGERY DIVISION:

Colorectal Unit:

Professor Dr April Camilla [Roslani](#) BSc (Wales), MBCh (Wales), MS (Mal), FRCS (Glasgow) FRCS (Edin), FAMM

Professor Dr Kim Seon Hahn MD (Korea), PhD (Korea), FACS(USA)

Associate Professor Dr Khong Tak Loon MBBS (Edin), MSc Surg Sc (Lond), MD (Lond), FRCS (UK)

Dr Nora binti Abdul Aziz MS BCHBAD (NUIUCD), MS (Mal)

Dr Mohammad Rezal bin Abdul Aziz MBBS (Ireland), MRCI (Ire)

Breast Unit:

Professor Dr Nur Aishah binti Mohd Taib MBBS (Mal), MRCS (Edin), MS (Mal)

Associate Professor Dr See Mee Hong B.Med (UPM), MD (UPM), MS (Mal)

Dr Teoh Li Ying MBBS (Mal), MSurg (Mal)

Associate Professor Dr Dr Suniza binti Jamaris MBBS (Mal), MS (Mal)

Dr Tania Islam MBBS (Chittagong), PhD (Jap)

Hepatobiliary Unit:

Associate Professor Dr Koh Peng Soon MS (Mal)

Endocrine Unit:

Associate Professor Dr Ng Khoon Leong MBBS, FRCS (Edin), FRCS (Glasg)

Vascular Unit:

Dr Ahmad Rafizi Hariz bin Ramli MBBS (Mal), MS (Mal)

Upper GI Unit:

Dr Wong Wei Jin MD(Dalhousie) MSurg(Mal)

Cardiothoracic Surgery Division:

Professor Dr Shahrul Amry bin Hashim MBChB (UK), MRCS (Edin), FRACS (Edin)

Associate Professor Dr Sivakumar a/l Krishanasamy MBBS (Mal), MRCS (Edin), MS (Mal)

Paediatric Surgery Division:

Professor Dr Shireen Anne Nah Han Yien - MBBS (Mal),
MRCS(Edinburgh), MSurg(UM) Associate Professor Dr Anand a/l Sanmugam MD
(UPM), MSurg (Mal)

Dr Srihari Singaravel MBBS (Chennai India), MS (Pediatric Surgery) (Mal)

Dr Ganesh a/l P. Vythilingam (MAHE), MS (Pediatric Surgery) (Mal), MRCS (Ireland), PhD(UM)

Dr. Tan Yew Wei MB ChB (Commendation, Aberdeen), FRCS (Paed Surg), CCT Paed Surg (London),
RCS Eng Fellowship (Paed Colorectal), PG Cert Med Ed (Cambridge), Cert Digital Transformation in
Healthcare (Imperial)

Urology Division:

Professor Dr Ong Teng Aik MBBS (Mal), MS (Mal), FRCS (UK), FEBU (European), FRCSI (Ireland)

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Dr Ahmad Nazran bin Fadzil MBChB (Leic), MS (Mal)

Dr Chai Chu Ann MD (KSMU), MS (Mal)

Plastic Surgery Division:

Professor Dr Alizan bin Abdul Khalil MBB (Mal) MS (Mal), PhD (Plastic Surgery)(Aust)

Dr Kong Chee Kwan MD (UNIMAS), MS (Mal)

Dr Muhammad Ridwan Mirza Asfian MBBS (Mal), MS (Mal)

Neurosurgery Division:

Professor Dr Vickneswaran a/l Mathaneswaran MBBS (Hons)(Mal), FRCS (Edin), Japanese Council for
Medical Training (Japan), FRCS(Edin)(Neurosurgery)

Professor Dr Dharmendra a/l Ganesan MBBS (Mal), MS (Mal) FRCS (Edin), FRCS (Ire)

Professor Dato' Dr Hari Chandran a/l Thambinayagam MBBS (Chennai, India), FRCS (Edin)

Associate Professor Dr Kamal Azrin bin Abdullah @ Kalai Arasu MBBS (Mal), MS (Mal), Dphil
(Oxon) Associate Professor Dr Vairavan Narayanan MD (UKM), MS (UKM), FRCS Edin (Neuro
Surg)

Dr Ravindran A/L Karuppiah MBBS (Thanjavur), MRCS(Edin), MS (Mal)

Dr. Thangaraj A/L Munusamy MA MB BChir (Cambridge), FRCS Neurosurgery (England)

Senior Lecturers

Dr Lim Jasmine BMedSc(Hons)(UPM), PhD (Oxford)

Dr Retnagowri a/p Rajandram BScBiochem(Hons) (Aus), PhD(Aus)

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Associate Professor Dr Rozita binti Abdul Malik MBBS (Mal), Mco (Mal)

Associate Professor Dr Wan Zamaniah binti Wan Ishak MBBS (Mal), Mco (Mal)

Associate Professor Dr Ung Ngie Min BEng (Mal), MMedPhysics (Mal), PhD (Aust)

Lecturers:

Dr Nurfadhlinah binti Abdul Satar MBBS (Nottingham, UK), MRCP (UK), FRCR (Roy Coll Lond) MSc (Oncology) (UK)

Dr Lee Dai Wee MBBS (IMU), MCO (Mal)

Dr Nur Adila binti Mokhtar MBChB (UK), MRCP (UK), FRCR (UK), CCT (UK)

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Associate Professor Dr Mohamad Shariff bin A Hamid MBBS (Adel), MSpMed (Mal), PhD (Mal)

Associate Professor Dr Zulkarnain bin Jaafar MD (USM), MSpMed (Mal)

Associate Professor Dr Goh Siew Li MD (USM), MSpMed (Mal), PhD (Nottingham)

Medical/Senior Lecturers:

Dr Samihah binti Abdul Karim MD (UPM), MspMed (Mal)

Dr Choong Wai Kwong MD (UKM), MSpMed (Mal)

Medical Lecturers:

Dr Ahmad Hazwan bin Ahmad Shushami MBBS (Mal), MspMed (Mal)

Dr Muhammad Kashani bin Mohd Kamil MD (*Universitas Sumatera Utara Indonesia*), MspMed (Mal)

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Medical Lecturers:

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Dr Aidawati Bustam @ Mainudin, *MA, MB BCHir (Cambridge), MEmMed (UM)*

Dr Ahmad Zulkarnain Ahmed Zahedi, *MBBS (UM), MEmMed (UM)*

Dr Khadijah Poh Yuen Yoong, *MBBS (UM), MEmMed (UM)*

Dr Mohd Zahir Amin Mohd Nazri, *MBBS (UM), MEmMed (UM)*

Dr Mohd Hafyzuddin bin Md Yusuf, *MB Bch BAO (Ireland), MEmMed (UM)*

Dr Mohammad Aizuddin Azizah Ariffin, *MBBS (Otago, New Zealand), MEmMed (UM)*

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Professor:

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Associate Professors:

Associate Professor Dr Vinod Pallath *PhD (India), MSc (India), BSc (India)*

Associate Professor Dr Foong Chan Choong *PhD (Mal), BSc.Ed (Hons) (Mal)*

Senior Lecturer:

Dr Hong Wei-Han *PhD (UM), MEd (UM), BScEd (Hons) (UTM)*

Graduates of the Universiti Malaya will be able to:

1. Demonstrate knowledge and skills in their field of study, appropriate research and professional practices, and the processes of critical thinking, creative thinking, and problem solving.
2. Use effective methods including contemporary technology to manage information, to achieve diverse professional goals aligned with professional standards and make decisions based on appropriate data and information.
3. Engage in continuous self-improvement and professional growth, support the professional development of others, and display positive leadership and professional behaviours and disposition for effective practice.
4. Communicate effectively with other professionals, and the community, and project a coherent vision of social responsibilities.
5. Appreciate and continue to be guided by the University's core values of integrity, respect, academic freedom, open-mindedness, accountability, professionalism, meritocracy, teamwork, creativity and social responsibility.



UNIVERSITI
MALAYA

VISION

A global university impacting the world.

MISSION

Pushing the boundaries of knowledge and nurturing aspiring leaders.



FAKULTI PERUBATAN
Faculty of Medicine

VISION

To become a Centre of Excellence in Medicine

MISSION

To become a premier medical centre that is world renown and to provide excellent health care, education, and research programmes delivered with efficiency, sensitivity and enthusiasm.



The Universiti Malaya was established on 8 October 1949 as a national institution to serve the higher educational needs of the Federation of Malaya and of Singapore. In 1960, the Government of the Federation of Malaya indicated that the Kuala Lumpur Division of the University of Malaya should become the national University in the Federation with effect from the beginning session 1962/63. Likewise, the Singapore Division should become the national University of Singapore. Steps to achieve the establishment of these two separate universities were finalized during the year 1961 and the University of Malaya was established on 1st January 1962. The student population at that time was about 330. Since then, the University has grown and developed rapidly. Today, the student population has grown to almost 30,000.

Establishment of the Faculty of Medicine at the Universiti Malaya

Up to the 1950's, the Faculty of Medicine, University of Singapore, which was known previously as King Edward VII College of Medicine had been the only medical school in Malaya and Singapore. The output of doctors at that time was small: 60 per year. Many Malaysians had to go overseas to seek undergraduate medical education. It was not until 1960 that a determined effort was made to double the intake of students to 120 per year in Singapore. In 1960, a board of studies of the University of Malaya was appointed to study the feasibility of establishing a medical school with its own teaching hospital. The board recommended the early establishment of both.

To this end, the Government agreed and the Ministries of Education and of Health provided the necessary capital funds. In 1962, a Dean for the Faculty of Medicine was appointed.



FIRST BATCH- 1969

The first batch of medical students was admitted to the Faculty in 1964. A year earlier, these students, 40 of them, were placed in the Faculty of Science as pre-medical students. Construction of the faculty building began in July 1963, was completed in 10 months, so that the pioneer students were able to begin their course in May 1964. The building programme continued and the second phase was ready in time for Year II teaching the following May. Throughout this period, planning, building, ordering and receiving of equipment, recruitment of staff, organization of the Faculty, and discussions on the curriculum continued unremittingly. Phase I of the University Malaya Medical Centre consisting of the main block together with podium or "technical box" (operating theatres, radio-diagnostic, accident and emergency, polyclinic, pharmacy, central sterile supply, cafeteria, administration and medical records) was completed in December 1966, and the first wards were opened as on March 1967. Phase II of the Hospital consisting of Paediatric, Maternity and Rehabilitation Units was completed in December 1967, and became functional in March 1968. The total construction period for the Medical Centre consisting of the faculty departments, hospital (740 beds), Hostel for Clinical Students, Nurses Quarters with Nursing School and Central Animal House was three and a half years. Over the past three decades, the medical centre has expanded tremendously, and today it has 900 beds (the number will be increased to 1200 beds after renovation).

Philosophy of the Faculty of Medicine

The philosophy of the Faculty is to mould students to be competent, highly-skilled and knowledgeable health professionals, who can work with others as a team, who are caring and concerned about their patients and society, and who can emerge as leaders in their community.

All candidates shall be subjected to:

- The Universities and University Colleges Act, (Amendment) 2009
- The Constitution of the University of Malaya
- The University of Malaya (Discipline of Students) Rules, 1999
- The Universiti Malaya (Master's Degree) Rules & Regulations, 2019
- The Universiti Malaya (Doctoral Degree) Rules & Regulations, 2019
- FOM Postgraduate Handbook

*Any University' Rules and Regulations that take immediate effect from time to time

POSTGRADUATE HANDBOOK 2023/2024 SESSION

FACULTY OF MEDICINE, UNIVERSITI MALAYA

ACADEMIC CALENDAR 2023/2024 ACADEMIC SESSION			
TERM I			
Clinical Training	01.06.2023	-	30.11.2023
Part I/II/III/Final Examination	September/October/November 2023		
TERM II			
Clinical Training	01.12.2023	-	31.05.2024
Part I/II/III/Final Examination	March/April/May 2024		

Note:

1. 52 weeks including introduction week, revision and examination
2. Examination Schedule according to the program of study

Name of Programme : Master of Anaesthesiology
Faculty : Faculty of Medicine

1. Classification of Programme

The Master of Anaesthesiology programme is a clinical coursework programme in which the research component comprises less than thirty (30) percent of the whole programme of study.

2. Entry Requirements

(1) Entry qualifications

- (a) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or an equivalent medical qualification approved by the Senate;
- and
- (b) At least one year of post-full registration clinical experience approved by the Senate.

(2) Other requirements

- (a) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
- (b) Satisfies the Department responsible for the candidate's programme of study in an Entrance Evaluation recognised by the Faculty.

(3) English requirements

The Non-Malaysian applicant whose degree is from university or institution of higher learning that did not use English as the medium of instruction for that degree shall be required:

Type of English Qualifications		Minimum Score
International English Language Testing (IELTS)		6
<i>Test of English as a Foreign Language (TOEFL)</i>	IBT (Centre based)	60
	IBT Essentials	8.5
<i>Pearson Test of Academic English (PTE)</i>		59
<i>Cambridge English Qualifications and Tests</i>	<i>B1 Preliminary, B2 First, C1 Advanced, C2 Proficiency</i>	169
	<i>Lingua skill Online</i>	169
	<i>Occupational English Test (OET) (Conventional/Online)</i>	250

3. Duration of Study

- (1) The minimum duration of study shall be four years.
- (2) The maximum duration of study shall be seven years.

4. Structure of Programme

The programme of study comprises three stages as follows:

- (1) Stage I in the first year of study encompassing clinical training in basic skills in anaesthesia and resuscitation for patient management
- (2) Stage II comprising training in the second and third year of study in:
 - (a) clinical anaesthesiology and in non-anaesthesiology postings undertaken in rotation such as general medicine, radiology, emergency medicine, or any other posting as may be approved by the Department responsible for the candidate's programme of study; and
 - (b) Research methodology, including the conduct of a research project in any field of anaesthesia, intensive care or pain management.
- (3) Stage III comprising clinical training in the fourth year in specialised fields of anaesthesiology or intensive care or of anaesthesiology and intensive care.
- (4) A candidate is required to maintain a log book throughout his/her period of study to document tasks undertaken.

5. Registration

- (1) Registration for the programme of study shall commence the week prior to the start of the academic session.
- (2) A candidate may be permitted to register directly for Stage II of the programme of study if he/she has -
 - (a) a minimum of two years experience in clinical anaesthesiology in a hospital recognised by the Faculty and passed any one of the examinations listed below-
 - (i) the Primary Examination of the Royal College of Anaesthetists;
 - (ii) the Primary Examination of the Australian and New Zealand College of Anaesthetists;
 - (iii) the Primary Examination for the degree of Master of Medicine in Anaesthesia of the National University of Singapore;
 - (iv) the Part II Examination of the Royal College of Anaesthetists;
 - (v) the Final Examination of the College of Anaesthetists Ireland; or
 - (vi) any other examination as may be approved from time to time by the Senate on the recommendation of the Faculty; or

6. Attendance

During his/her programme of study -

- (1) a candidate may be permitted to undertake part of his/her programme of study in other hospitals or centres recognised by the Faculty;
- (2) a candidate who has been absent for a period exceeding forty-two (42) days in any academic year shall be required to undertake an extended period of training to be determined by the Faculty; provided always that the extended period of training shall not exceed the maximum period of candidature.

7. Supervision

- (1) The supervisor for a candidate shall be appointed not later than two months after the registration of the candidate.
- (2) A consultant shall be appointed for a candidate who undertakes part of his/her programme of study outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.

8. Title of Research

The research project for a candidate shall be determined by the Department responsible for the candidate's programme of study not later than one month prior to the commencement of the research.

9. Submission

- (1) A candidate is required to submit his/her log book and posting reports not later than one month before the Final Examination.
- (2) A candidate is required to submit his/her research report not later than six months before the Final Examination.

10. Examinations for the Degree

- (1) The Examinations leading to the degree shall be as follows:
 - (a) the Part I Examination
 - (b) the Final Examination
- (2) No candidate shall be permitted to sit for the Final Examination unless he/she has –
 - (a) passed or been exempted from the Part I Examination. A candidate may be exempted from the Part I Examination if he/she passed any one of the examinations listed below:
 - (i) the Primary Examination of the Royal College of Anaesthetists;
 - (ii) the Primary Examination of the Australian and New Zealand College of Anaesthetists;
 - (iii) the Primary Examination for the degree of Master of Medicine in Anaesthesia of the National University of Singapore;
 - (iv) the Part II Examination of the Royal College of Anaesthetists;

- (v) the Final Examination of the College of Anaesthetists Ireland; or
- (vi) any other examination as may be approved from time to time by the Senate on the recommendation of the Faculty.
- (b) submitted his/her log book and posting reports not later than one month before the Final Examination; and
- (c) completed and submitted his/her research report six months prior to the Final Examination.
- (3) (a) The Part I Examination shall be held at the end of the first year of the programme of study. The Final Examination shall be held at the end of the fourth year of the programme of study.
- (b) The examination for the Written Section will be held within six weeks before examination for the Oral Section.
- (c) Passing marks for every section is at least 50%. The aggregate passing mark for each examination is at least 50%.
- (d) Only candidates who passed the examination for the Written Section qualifies to sit for the Oral Section. However, candidates who scored 50% of total marks in the Written Section may be allowed to sit the Oral Section.

(4) Examination Subjects and Allocation of Marks

(a) Part I Examination

The subjects of the Part I examination and the marks to be allocated to each subject shall be as follows:

Subject	Description	Allocation of Marks (Maximum)
A. Written Section		
Subject: Pharmacology		
MBGE6101 Paper I	Multiple Choice Questions	15
MBGE6102 Paper 2	Essay and Short Answer Questions	15
	Total	<u>30</u>
Subject: Physiology and Clinical Measurements		
MBGE6104 Paper I	Multiple Choice Questions	15
MBGE6105 Paper 2	Essay and Short Answer Questions	15
	Total	<u>30</u>
	Total written section	<u>60</u>
B. Oral Section		
MBGE6121 (Pharmacology)	Viva Voce 1	<u>20</u>
MBGE6122 (Physiology and Clinical Measurement)	Viva Voce 2	<u>20</u>
	Total oral section	<u>40</u>
	Total part 1 Examination	<u>100</u>

(b) Final Examination

The sections of the Final examination and the marks to be allocated to each sections shall be as follows:

	Component	Description	Allocation of Marks (Maximum)
A.	Written		
	MBGE6236	Paper 1 Multiple Choice Questions	20
	MBGE6237	Paper 2 Essay Questions	20
B.	Clinical		
	MBGE6243	- Long Case	20
	MBGE6250	- Viva-Voce	40
		Total	<u>100</u>

(5) Requirements for Passing an Examination

A candidate shall be deemed to have passed the Examinations prescribed below if he/she has:

(a) Part I Examination

- (i) On his/her first attempt, sat for both subjects; and
- (ii) Obtained at least 50% of total marks of the examination; and
- (iii) Obtained at least 50% marks for each oral examination.

(b) Final Examination

Obtained 50% or more of the marks for each componen of the Examination.

The written Examination will be held within six (6) weeks prior to the clinical Examination. Only candidate that passes the written Examination (component A), will be allowed to sit the Clinical Examination (Componen B). A candidate who fails the clinical Examination will have to Re-Sit the written Examination before attempting the Clinical Examination again.

(6) Repeating an Examination

(a) Part I Re-Examination

- (i) A candidate who has failed the Part I Examination may be permitted a Re-examination on three separate occasions at six monthly intervals.
- (ii) The Part I Re-Examination shall consist of the same subjects and shall be assessed and graded in the same manner as prescribed for the Part I Examination.
- (iii) The candidate has to re-sit the failed subject.
- (iv) Candidate who failed the examination for the oral section is allowed to repeat the oral examination section for two consecutive re-examinations.

- (v) Candidate who failed the second re- examination is required to re-sit all relevant components in Part I examination.
 - (vi) A candidate who fails the Re- examination on the third occasion shall be deemed to have failed the Part I Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.
- (b) Final Re-Examination
- (i) A candidate who has failed the Final Examination may be permitted a Re-examination on separate occasions at six monthly intervals until the maximum period of study is reached.
 - (ii) The Final Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Final Examination.
- Candidates that have passed the written examination but failed the clinical examination are only required to sit/repeat the clinical examination. The results of the written examination are valid only for one year.
- (iii) A candidate who fails the Re-examination on the final occasion ie at maximum period of study shall be deemed to have failed the Final Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.
- (c) A candidate who has passed the Re-examination for the Examinations above shall be deemed to have passed the prescribed Examinations.

11. Award of Degree

No candidate shall be recommended for the award of the Degree of Master of Anaesthesiology unless he/she has successfully completed all parts of the course, completed the minimum duration of study and has passed the prescribed Examinations.

(1) Award of Pass with Distinction for the Examination

A candidate may be awarded a Pass with Distinction in the Part I Examination and the Final Examination if he/she –

- (a) has obtained 75% or more of the aggregate marks in each of the prescribed Examination;
- (b) has not failed in any component of the prescribed Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

(2) Award of the Degree with Distinction

A candidate may be awarded the degree of Master of Anaesthesiology with Distinction if he/she –

- (a) has passed with Distinction in the Final Examination;
- (b) has not failed in any component of the prescribed Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

**MASTER OF ANAESTHESIOLOGY
PROGRAMME SCHEDULE**

S T A G E III	Year 4	<ul style="list-style-type: none"> ▪ Clinical training in specialized fields of Anaesthesiology and/or intensive Care 	Final Examination
S T A G E II	Year 3 Year 2	<ul style="list-style-type: none"> ▪ Clinical Anaesthesiology and Non-Anaesthesiology Posting in rotation 	Part I Examination
S T A G E I	Year 1	<ul style="list-style-type: none"> ▪ Basic Anaesthesiology 	Registration (Entrance Evaluation)

Name of Programme : Master of Clinical Oncology
Faculty : Faculty of Medicine

1. Classification of Programme

The Master of Clinical Oncology is a clinical coursework programme in which the research component comprises less than thirty (30) percent of the whole programme of study.

2. Entry Requirements

(1) Entry qualifications

- (a) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or an equivalent medical qualification approved by the Senate; and
- (b) At least two (2) years of post-full registration clinical experience which must include a minimum of six (6) months in medicine AND a minimum of six (6) months in surgery, with experience in active medical and surgical on-call.*

*The minimum experience in medicine and surgery must have been undertaken within the last five (5) years from the point of entry into the programme.

(2) Other requirements

- (a) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
- (b) Achieves the minimum requirement in the entrance evaluation for the programme.

(4) English requirements

The Non-Malaysian applicant whose degree is from university or institution of higher learning that did not use English as the medium of instruction for that degree shall be required:

Type of English Qualifications		Minimum Score
International English Language Testing (IELTS)		6
Test of English as a Foreign Language (TOEFL)	IBT (Centre based)	60
	IBT Essentials	8.5
Pearson Test of Academic English (PTE)		59
Cambridge English Qualifications and Tests	B1 Preliminary, B2 First, C1 Advanced, C2 Proficiency	169
	Lingua skill Online	169
	Occupational English Test (OET) (Conventional/Online)	250

3. Duration of Study

- (1) The minimum duration of study shall be four years.
- (2) The maximum duration of study shall be seven years.

4. Structure of Programme

The programme of study comprises two (2) stages as follows:

- (1) Stage I in the first year of study comprising:
 - (a) teaching and learning in basic sciences subjects – anatomy, molecular biology, cancer pathology, medical statistics, pharmacology, radiobiology and radiotherapy physics;
 - (b) clinical teaching, learning and training covering all aspects of non-surgical cancer management for different tumour sites with emphasis on radiotherapy and systemic therapy;
 - (b) workplace-based assessments and documentation in training portfolio of the procedures and clinical skills undertaken.
- (2) Stage II in the second, third and fourth years of study comprising:
 - (a) research project;
 - (b) clinical teaching and training covering all aspects of non-surgical cancer management for different tumour sites with emphasis on radiotherapy and systemic therapy;
 - (c) workplace-based assessments and documentation in training portfolio of the procedures and clinical skills undertaken.
- (3) Candidate is allowed to proceed to Stage II (Year 2) of the programme without clearing Part I examination. However, candidate has to pass Part I examination within the stipulated period.
- (4) Candidate is allowed to proceed to Stage III (Year 4) of the programme without passing Part II examination. However, candidate has to pass Part II examination within the stipulated period before sitting for Final examination.

5. Registration

Registration for the programme of study shall commence for two (2) weeks after the start of the academic session.

6. Attendance

During his programme of study -

- (1) A candidate may be permitted to undertake part of his/her training in other hospitals or centres recognised by the Faculty.
- (2) A candidate who has been absent for a period exceeding forty-two (42) days in any academic year shall be required to undertake an extended period of training to be determined by the Faculty; provided always that the extended period of training shall not exceed the maximum period of candidature.

7. Supervision

- (1) A supervisor for the candidate shall be appointed not later than two (2) months after the initial registration into the programme.
- (2) A consultant shall be appointed for a candidate who undertakes part of his/her programme of study outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.
- (3) A supervisor for research project shall be appointed not later six (6) months after the initial registration into the programme.

8. Title of Research

The research project for a candidate shall be determined not later than one (1) month prior to the commencement of the research.

9. Submission

- (1) A candidate is required to submit the training portfolio not later than two (2) months before the Final Examination.
- (2) A candidate is required to submit the research report not later than two (2) months before the Final Examination.

10. Examinations for the Degree

- (1) The Examinations leading to the degree shall be as follows:
 - (a) the Part I Examination;
 - (b) the Part II Examination; and
 - (c) the Final Examination
- (2) No candidate shall be admitted to the Part II Examination unless he/she has passed the Part I Examination at least six months before the Part II Examination.
- (3) No candidate shall proceed to the Final Examination unless he/she has
 - (a) passed the Part II Examination;
 - (b) submitted the training portfolio not later than two (2) months before the Final Examination; and
 - (c) completed and submitted the research report not later than two months before the Final Examination.
- (4) The Part I Examination shall be held at the end of Stage I of the programme of study. The Part II Examination shall be held at the end of twenty-four (24) months of Stage II of the programme of study. The Final Examination shall be held at the end of the thirty-six (36) months of Stage II of the programme of study.
- (5) Examination Components and Allocation of Marks
 - (a) Part I Examination

The components of the Part I Examination and the marks to be allocated to each component shall be as follows:

No	Subject Description	Component/Description/Allocation of Marks (Maximum)		
		Short Answer Questions	Multiple Choice Questions	Marks Total
1.	Radiotherapy physics	100	100	200
2.	Medical statistics	100	100	200
3.	Molecular biology	100	100	200
4.	Cancer pathology	100	100	200
5.	Pharmacology	100	100	200
6.	Radiobiology	100	100	200
Grand Total				1200

(b) Part II Examination

The components of the Part II Examination and the marks to be allocated to each component shall be as follows:

Component	Description	Allocation of Mark (Maximum)
A. Written	Paper 1 Multiple Choice Questions	100
	Paper 2 Case Orientated Questions	<u>100</u>
	Total	200
B.	Clinical Short Cases	100
C.	Objective Structured Clinical Examination	<u>100</u>
Grand Total		<u>400</u>

(c) Final Examination

The components of the Final Examination and the marks to be allocated to each component shall be as follows:

	Description	Allocation of Marks (Maximum)
A.	Research report	100
B.	Training Portfolio	<u>100</u>
	Total	<u>200</u>

(6) Requirements for Passing an Examination

A candidate shall be deemed to have passed the Examinations prescribe below if he/she has obtained:

(a) Part I Examination

50% or more of the aggregate combined marks for the components in each subject of the examination and not less than 50% of the marks for each component in the subject.

A candidate who does not fulfill the above requirement for a Subject shall be deemed to have failed the Subject concerned but shall be credited with the Subject or Subjects he/she has passed and be required to repeat only the Subject that he/she has failed.

(b) Part II Examination

50% or more of the aggregate combined marks for the components of the examination and not less than 50% of the marks for each component.

(c) Final Examination

50% or more of the marks for each component of the Final Examination.

(7) Pass the Examination with Distinction

A candidate may be obtained a Pass with Distinction in the Part I Examination and the Part II Examination if he/she –

- (a) has obtained 75% or more of the aggregate marks in each of the prescribed Examinations at the first attempt;
- (b) has not repeated any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

(8) Repeating an Examination

(a) Part I Re-Examination

- (i) A candidate who has failed the Part I Examination may be permitted a re-examination on three separate occasions, at six-monthly intervals.
 - (ii) The Part I Re-Examination shall consist of all previously failed subjects and shall be assessed and graded in the same manner as prescribed for the Part I Examination.
- (c) A candidate who fails the re-examination on the third occasion shall be deemed to have failed the Part I Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.

(b) Part II Re-Examination

- (i) A candidate who has failed the Part II Examination may be permitted a re-examination on three separate occasions only, at yearly intervals.
- (ii) The Part II Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Part II Examination.
- (iii) A candidate who fails the re-examination on the third occasion shall be deemed to have failed the Part II Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.

(c) Final Re-Examination

- (i) A candidate shall be re-examined in only the component that he/she has failed.
 - (ii) A candidate who has failed in the research report and/or training portfolio component may be referred for further work in the component that he/she has failed, over a period of time to be determined by the Committee of Examiners except that such periods of time as determined shall not exceed six (6) months on any one occasion. At the end of the prescribed period the candidate shall be required to submit the research report and/or relevant document for re-examination. A candidate who fails to submit the research report and/or the relevant document by the end of the prescribed period for re-examination shall be deemed to have failed the Examination. A candidate is only allowed to resit if the total duration of study is not exceeded. If a candidate fails Final examination but also reaches the maximum duration of study, the candidate has failed the Final examination and shall not be permitted to repeat the programme of study except in special circumstance on the recommendation of the Faculty of Medicine and with approval of Senate.
 - (iii) A candidate shall be permitted to re-submit the research report and/or the relevant document for re-examination on not more than one occasion.
 - (iv) A candidate who fails the component(s) after the re-submission shall be deemed to have failed the Final Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with approval of Senate.
- (d) A candidate who has passed the re-examination for the Examinations shall be deemed to have passed the prescribed Examinations.

11. Award of Degree

(1) Award of the Degree of Master of Clinical Oncology

A candidate shall meet the following requirements for the purpose of graduation for the programme of Master of Clinical Oncology:

- (a) passes the prescribed Examination for the Master's Degree programme by Clinical concerned;
- (b) fulfils other requirements set by the Faculty, if any, for the Master's Degree programme by Clinical concerned;
- (c) fulfils the language requirements, if any, as prescribed; and
- (d) fulfils other requirements approved by Senate from time to time.

(2) Award of the Degree of Master of Clinical Oncology (With Distinction)

A candidate may be awarded the degree of Master of Clinical Oncology (With Distinction) if he/she:

- (a) has passed with Distinction in both the Part I and Part II Examinations; and
- (b) has not failed and has not repeated any component of the Examination or any part of the programme of study within the prescribed period except on medical or compassionate grounds accepted by the Faculty.

**MASTER OF CLINICAL ONCOLOGY
PROGRAMME SCHEDULE**

Stages	Years	Description	Assessments
Pre-Entry	-	Prior to entry into training.	Entrance Evaluation
S T A G E 1	Year 1	Teaching and learning in basic sciences subjects – anatomy, cancer biology, cancer pathology, medical statistics, pharmacology, radiobiology and radiotherapy physics. Clinical teaching, learning and training with various assessment tools to cover all aspects of non-surgical cancer treatment with emphasis on radiotherapy and systemic therapy. Workplace-based assessments and documentation in logbooks of the procedures and clinical skills undertaken will be carried out throughout the whole duration of the training programme.	Continuous Assessments Part I Examination
	Year 2 Year 3	Conduct research project. Clinical teaching, learning and training with various assessment tools to cover all aspects of non-surgical cancer treatment with emphasis on radiotherapy and systemic therapy. Workplace-based assessments and documentation in logbooks of the procedures and clinical skills undertaken will be carried out throughout the whole duration of the training programme.	Continuous Assessments Part II Examination
S T A G E 2	Year 4	Continue with clinical training and assessments. Submission of training portfolio and research project report.	Continuous Assessments Final Examination

Name of Programme : Master of Emergency Medicine
Faculty : Faculty of Medicine

1. Classification of Programme

The Master of Emergency Medicine programme is a clinical coursework programme in which the research component comprises less than thirty (30) percent of the whole programme of study.

2. Entry Requirements

(1) Entry qualifications

- (a) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or an equivalent medical qualification approved by the Senate; and
- (b) At least one year of post-full registration clinical experience approved by the Senate.

(2) Other requirements

- (a) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
- (b) Passes an entrance evaluation and an interview process.

(3) English requirements

The Non-Malaysian applicant whose degree is from university or institution of higher learning that did not use English as the medium of instruction for that degree shall be required:

Type of English Qualifications		Minimum Score
International English Language Testing (IELTS)		6
Test of English as a Foreign Language (TOEFL)	IBT (Centre based)	60
	IBT Essentials	8.5
Pearson Test of Academic English (PTE)		59
Cambridge English Qualifications and Tests	B1 Preliminary, B2 First, C1 Advanced, C2 Proficiency	169
	Lingua skill Online	169
	Occupational English Test (OET) (Conventional/Online)	250

3. Duration of Study

- (1) The minimum duration of study shall be four (4) years.
- (2) The maximum duration of study shall be seven (7) years.

4. Structure of Programme

- (1) The programme of study comprises three (3) stages which are Stage I in the first year, stage II in the second year and third year and stage III in the fourth year. These stages are as follows:
 - (a) Stage I comprises:
 - (i) The study of basic sciences relevant to the practice of Emergency Medicine.
 - (ii) Clinical posting in Emergency Medicine for at least six (6) months. Other related clinical postings as determined by the Department with emphasis on the emergency aspects in the specialties of anaesthesia, paediatrics, internal medicine and general surgery.
 - (iii) Continuous assessments as determined by the Department.
 - (b) Stage II comprises:
 - (i) Clinical posting in Emergency Medicine for at least twelve (12) months. Other related clinical postings as determined by the Department with emphasis on intensive care medicine and the emergency aspects in the specialties of obstetric and gynaecology, radiology, otorhinolaryngology, ophthalmology, orthopaedic surgery and neurosurgery.
 - (ii) Continuous assessments as determined by the Department.
 - (iii) A Research Project must be started during the early phase of Stage II.
 - (iv) Must pass the Advanced Cardiac Life Support Course (ACLS), Advanced Trauma Life Support Course (ATLS), Paediatric Advanced Life Support Course (PALS) and/or equivalent courses recognized by Faculty.
 - (c) Stage III comprises of posting in Emergency Medicine and continuous assessments as determined by the Department.
- (2) A candidate is required to keep training portfolio book throughout his period of study to document tasks undertaken.

5. Registration

Registration for the programme of study shall commence for two (2) weeks after the start of the academic session.

6. Attendance

During his/her programme of study -

- (1) A candidate may be permitted to undertake part of his/her training in other hospitals or centres recognised by the Faculty.
- (2) A candidate who has been absent for a period exceeding forty-two (42) days in any academic year shall be required to undertake an extended period of training to be determined by the Faculty; provided always that the total period of training does not exceed the maximum period of candidature.

7. Supervision

- (1) The supervisor for the candidate shall be appointed not later than two (2) months after the initial registration of the candidate.
- (2) A consultant shall be appointed for a candidate who undertakes part of his/her programme of study outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.

8. Title of Research

The research project for a candidate shall be determined by the Department responsible for the candidate's programme of study not later than one month prior to the commencement of the research.

9. Submission

- (1) A candidate is required to submit his/her training portfolio every six (6) months for assessment by the Department responsible for the candidate's programme of study.
- (2) A candidate is required to submit his/her research report not later than six (6) months before the Final Examination.

10. Examinations for the Degree

- (1) The examinations leading to the Degree shall be as follows:
 - (a) the Part I Examination; and
 - (b) the Final Examination.
- (2) No candidate shall be permitted to sit for the Final Examination unless he/she has:
 - (a) passed the Part I Examination.
 - (b) completed and submitted his/her research report six months prior to the Final Examination.
 - (c) passed the 'Advanced Cardiac Life Support Course (ACLS)', 'Advanced Trauma Life Support Course (ATLS)', 'Paediatric Advanced Life Support Course (PALS)' and/or other courses recognized by the Faculty.

- (d) Submitted his/her training portfolio not later than one (1) month before the Final Examination.
 - (e) achieved satisfactory report in each continuous assessment.
- (3) The Part I Examination shall be held at the end of Stage I. The Final Examination shall be held at the end of Stage III of the programme of study.
- (4) Examination Components and Allocation of Marks
- (a) Part I Examination

The components of the Part I Examination and the marks to be allocated to each component shall be as follows:

Component	Description	Allocation of Marks (Maximum)
A. Written	Paper 1 Multiple Choice Questions	300
	Paper 2 Short Answer Type Questions	300
	Total	600
B. Clinical	Objective Structured Clinical Examination	400
	Total	400
	Grand total	1000

- (b) Final Examination

The components of the Final Examination and the marks to be allocated to each component shall be as follows:

Component	Description	Allocation of Marks (Maximum)
A. Written	Paper 1 Multiple Choice Questions	200
	Paper 2 Short Answer Type Questions	200
	Total	400
B. Clinical	Objective Structured Clinical Examination	600
	Total	600
	Grand total	1000

5) Requirements for Passing an Examination

A candidate shall be deemed to have passed the examination prescribed below if he/she has obtained:

(a) Part I Examination

50% or more for each of the components in the examination.

(b) Final Examination

- (i) 50% or more for each of the components in the examination.
- (ii) The candidate must pass the research project.

(6) Pass the Examination with Distinction

A candidate may be obtained a Pass with Distinction in the Part I Examination and the Final Examination if he/she has obtained 75% or more of the aggregate marks in each of the prescribed examinations. No candidate shall be eligible for the award of a Pass with Distinction based on the performance at a re-examination.

(7) Repeating an Examination

(a) Re-Examination of Part I Examination

- (i) A candidate is required to pass the Written Component of the examination before being allowed to sit for the Clinical Component of the examination.
- (ii) A candidate who has failed the Written Component of the examination is allowed a Re-Examination for two attempts with each attempt at six (6) monthly intervals.
- (iii) A candidate who has failed the Written Component in the Re-Examination on the second attempt shall be deemed to have failed the Part I Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty and with the approval of the Senate.
- (iv) A candidate who has passed the Written Component of the examination but failed the Clinical Component is allowed a Re-Examination for the Clinical Component for two attempts, with each attempt at six (6) monthly intervals without re-sitting the Written Component.
- (v) A candidate who has failed the Clinical Component in the Re-Examination on the second attempt shall be deemed to have failed the Part I Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty and with the approval of the Senate.

(b) Re-examination of Final Examination

- (i) A candidate is required to pass the Written Component of the examination before being allowed to sit for the Clinical Component of the examination.

- (ii) A candidate who has failed the Written Component of the examination is allowed Re-Examination for two attempts with each attempt at six (6) monthly intervals.
 - (iii) A candidate who has failed the Written Component in the Re-Examination on the second attempt shall be deemed to have failed the Final Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty and with the approval of the Senate.
 - (iv) A candidate who has passed the Written Component of the examination but failed the Clinical Component is allowed a Re-Examination for the Clinical Component for two attempts with each attempt at six (6) monthly intervals without re-sitting the Written Component.
 - (v) A candidate who has failed the Clinical Component in the Re-Examination on the second attempt is allowed another a Re-Examination after six (6) months, but must re-sit the Written Component. The candidate is required to pass the Written Component before being allowed to sit for the Clinical Component.
 - (vi) A candidate who has failed the Clinical Component in the Re-Examination on the second attempt shall be deemed to have failed the Final Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty and with the approval of the Senate.
- (c) A candidate who has passed the re-examination for the examinations shall be deemed to have passed the prescribed Examinations.

11. Award of Degree

(1) Award of the Degree of Master of Emergency

A candidate shall meet the following requirements for the purpose of graduation for the programme of Master of Emergency:

- (a) passes the prescribed Examination for the Master's Degree programme by Clinical concerned;
- (b) fulfils other requirements set by the Faculty, if any, for the Master's Degree programme by Clinical concerned;
- (c) fulfils the language requirements, if any, as prescribed; and
- (d) fulfils other requirements approved by Senate from time to time.

(2) Award of the Degree of Master of Emergency (With Distinction)

A candidate may be awarded the Degree of Master of Emergency (With Distinction) if he/she:

- (a) has passed with Distinction in the Part I Examination and the Final Examination; and
- (b) has not failed or repeated any component of the Examinations or any portion of the training programme within the stipulated time except for medical or humanitarian reasons with the approval of the Faculty.

MASTER OF EMERGENCY MEDICINE PROGRAMME SCHEDULE

S T A G E	Year 4 (at UM or other centres)	<ul style="list-style-type: none"> Clinical posting in Emergency Medicine. Continuous assessments. Training portfolio to be submitted every 6 months. A research report to be submitted at least 6 months before Final Examination. 	Final Examination
S T A G E		<ul style="list-style-type: none"> Clinical postings in Emergency Medicine for at least 12 months. Clinical postings with emphasis on intensive care medicine and emergency aspects of <ul style="list-style-type: none"> intensive care medicine obstetric and gynaecology radiology otorhinolaryngology ophthalmology orthopaedic surgery neurosurgery Continuous assessments. Training portfolio to be submitted every 6 months. Must passed the Paediatric Advanced Life Support Course (PALS), Advanced Cardiac Life Support Course (ACLS), Advanced Trauma Life Support Course (ATLS) and/or equivalent courses recognized by Faculty. A research project must be started during the early phase in Stage II. 	
S T A G E	Year 1 (at UM)	<ul style="list-style-type: none"> The study of basic sciences relevant to the practice of Emergency medicine Clinical postings in Emergency Medicine for at least 6 months. Clinical postings with emphasis on emergency aspects of <ul style="list-style-type: none"> anaesthesia paediatrics internal medicine general surgery Continuous assessments. Training portfolio to be submitted every 6 months. 	Part I Examination Registration (Entrance Evaluation)

Name of Programme : Master of Family Medicine
Faculty : Faculty of Medicine

1. Classification of Programme

The Master of Family Medicine programme is a clinical coursework programme in which the research component comprises less than thirty (30) percent of the whole programme of study.

2. Entry Requirements

(1) Entry qualifications

- (a) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or an equivalent medical qualification approved by the Senate; and
- (b) At least one year of post-full registration clinical experience approved by the Senate.

(2) Other requirements

- (a) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
- (b) Fulfill the requirements of the Entrance Evaluation

(3) English requirements

The Non-Malaysian applicant whose degree is from university or institution of higher learning that did not use English as the medium of instruction for that degree shall be required:

Type of English Qualifications		Minimum Score
International English Language Testing (IELTS)		6
<i>Test of English as a Foreign Language (TOEFL)</i>	<i>IBT (Centre based)</i>	60
	<i>IBT Essentials</i>	8.5
<i>Pearson Test of Academic English (PTE)</i>		59
<i>Cambridge English Qualifications and Tests</i>	<i>B1 Preliminary, B2 First, C1 Advanced, C2 Proficiency</i>	169
	<i>Lingua skill Online</i>	169
	<i>Occupational English Test (OET) (Conventional/Online)</i>	250

3. Duration of Study

- (1) The minimum duration of study shall be four years.
- (2) The maximum duration of study shall be seven years.

4. Structure of Programme

- (1) The programme of study comprises three (3) stages as follows:
 - (a) Stage I:

Clinical rotation in the first year of study in a hospital formally recognized by the Faculty in the following disciplines:

General Medicine;
Paediatrics; and
Obstetrics & Gynaecology
 - (b) Stage II:
 - (i) Six months of speciality posting, one month each in the following discipline:

Psychological medicine
Surgery
Orthopaedic Surgery
Ophthalmology
Otorhinolaryngology
Elective (e.g. dermatology)
 - (ii) Eighteen (18) months of clinical training in Family Medicine in the second and third year of study in centres formally recognized by the Faculty.
 - (c) Stage III:
 - (i) One year of advanced training in Family Medicine in the fourth year of study at a primary care setting, either in a health clinic or university-based primary care clinic.
 - (ii) family case studies;
 - (iii) keeping of a Practice Diary of selected cases from his clinical training; and
 - (iv) research
- (2) A candidate is required to maintain a training portfolio throughout his/her period of study to document tasks undertaken.
- (3)
 - (a) No candidate shall be permitted to proceed to Stage II of the programme of study unless he/she has passed or been exempted from the Part I Examination possesses a postgraduate qualification in Family Medicine or any qualifications of equivalent standard recognised by the Senate.
 - (a) No candidate shall be permitted to proceed to Stage III of the programme of study unless he/she has passed the Part II Examination.

5. Registration

Registration for the programme of study shall commence for two (2) weeks after the start of the academic session.

6. Attendance

During his/her programme of study -

- (1) a candidate may be permitted to undertake part of his/her training in other hospitals or centres recognised by the Faculty;
- (2) a candidate who has been absent for a period exceeding forty-two (42) days in any academic year shall be required to undertake an extended period of training to be determined by the Faculty; provided always that the extended period of training shall not exceed the maximum period of candidature.

7. Supervision

- (1) A supervisor for a candidate shall be appointed not later than two (2) months after the initial registration of the candidate.
- (2) A consultant shall be appointed for a candidate who undertakes part of his/her programme of study outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.

8. Title of Research

The research project for a candidate shall be determined by the Department responsible for the candidate's programme of study not later than one month prior to the commencement of the research.

9. Submission

- (1) A candidate is required to submit his/her training portfolio for the respective period of study not later than four (4) weeks prior to the Part I Examination. A candidate is also required to submit a family case study not later than 4 weeks prior to the Part I Theory Examination.
- (2) A candidate is required to submit his/her training portfolio for the respective period of study before the Part II Examination.
- (3) A candidate is required to submit his/her training portfolio, family case studies, a practice diary and research report for the respective period of study not later than one (1) month before the Part III Examination.

10 Examinations for the Degree

- (1) The Examinations leading to the degree shall be as follows:
 - (a) the Part I Examination;
 - (b) the Part II Examination; and
 - (c) the Part III Examination
- (2) No candidate shall be permitted to sit for the Part I Examination unless he/she has satisfactorily completed and submitted his/her training portfolio and family case study for the respective period of study not later than four (4) weeks before the Part I Examination.
- (3) No candidate shall be permitted to sit for the Part II Examination unless he/she has -

- (a) passed or has been exempted from the Part I Examination. A candidate may be exempted from the Part I Examination if he/she possesses a postgraduate qualification in Family Medicine or any qualifications of equivalent standard recognised by the Senate; and
 - (b) satisfactorily completed and submitted his/her posting reports of the respective period of study before the Part II Examination.
- (4) No candidate shall be permitted to sit for the Part III Examination unless he/she has -
 - (a) passed the Part II Examination; and
 - (b) satisfactorily completed and submitted his/her prerequisite documents not later than one (1) month before the Part III Examination.
 - (i) A candidate whose prerequisite documents are deemed unsatisfactory may be referred for further work over a period of time to be determined by the Department except that such period of time as determined shall not exceed one year on any one occasion. At the end of the prescribed period the candidate shall be required to submit the prerequisite documents for re-examination.
 - (ii) A candidate who fails to submit satisfactory prerequisite documents by the end of the prescribed period shall be deemed to have failed the prerequisite component.
 - (iii) A candidate is permitted to re-submit the prerequisite documents on not more than two occasions. Practice diary must be submitted not later than one (1) month before the Part III Examination.
 - (iv) After the maximum number of prerequisite submissions is over, the candidate is considered to have failed the Part III Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate
- (5) The Part I Examination shall be held at the end of the first year of the programme of study. The Part II Examination shall be held at the end of the third year of the programme of study. The Part III Examination shall be held at the end of the fourth year of the programme of study.
- (6) The Component A for Part I Examination will be held not later than four (4) weeks before the examination for Component B. Those who fail the Component A will not be allowed to take the Component B.

The Component A for Part II Examination will be held not later than four (4) weeks before the examination for Component B. Those who fail the Component A will not be allowed to take the Component B.
- (7) Examination Components and Allocation of Marks
 - (a) Part I Examination

The components of the Part I Examination and the marks and percentage values to be allocated to each component shall be as follows:

Component	Description	Allocation of Marks (Maximum)
A. Theory	Multiple Choice Questions Paper (MCQ)	60%
	Total	60%
B. Clinical	Objective Structured Clinical Examination (OSCE)	40%
	Total	100%

(b) Part II Examination

The components of the Part II Examination and the marks and percentage values to be allocated to each component shall be as follows:

Component	Description	Allocation of Marks (Maximum)
A. Theory	Multiple Choice Questions Paper (MCQ)	16%
	Patient Management Problems (PMP)	24%
	Total	40%
B. Clinical	Objective Structured Clinical Examination (OSCE)	60%
	Total	60%

(c) Part III Examination

The components of the Part III Examination and the marks and percentage values to be allocated to each component shall be as follows:

Subject	Description	Allocation of Marks (Maximum)
	Viva Voce/Practice Diary	100%

(8) Requirements for Passing an Examination

A candidate shall be deemed to have passed the Examinations prescribed below if he/she has obtained:

- (a) Part I Examination
50% or more of the marks for each component of the Examination.
- (b) Part II Examination
50% or more of the marks for each component of the Examination.
- (c) Part III Examination
50% or more of the marks for each component of the Examination.

(9) Pass the Examination with Distinction

A candidate may be obtained a Pass with Distinction in the Part I Examination, the Part II Examination and the Part III Examination if he/she -

- (a) has obtained 75% or more of the aggregate marks in each of the prescribed Examinations;
- (b) has not failed in any component of the prescribed Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

(10) Repeating an Examination

(a) Part I Re-Examination

- (i) A candidate who has failed the Component A of the Part I Examination may be permitted a re-examination on two separate occasions at six monthly intervals.
- (ii) A candidate who has passed the Component A of the Part I Examination but failed Component B may be permitted a re-examination of Component B at six monthly intervals.
- (iii) The total number of attempts for all components of Part I Examination shall not exceed three (3) times. A candidate who fails the examination on the third attempt shall be deemed to have failed the Part I Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.

(b) Part II Re-Examination

- (i) A candidate who has failed Component A of the Part II Examination may be permitted a re-examination on two separate occasions at six monthly intervals.
- (ii) A candidate who has passed Component A of the Part II Examination but failed Component B may be permitted a re-examination of Component B on two separate occasions at six monthly intervals.
- (iii) A candidate who fails the re-examination for Component A of the Part II Examination on the third attempt shall be deemed to have failed the Part II Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.
- (iv) A candidate who passes the re-examination for Component A of the Part II Examination on the third attempt is allowed to sit the Component B for three times. A candidate who fails Component B of the Part II Examination on the third attempt shall be deemed to have failed the Part II Examination and shall not be permitted to repeat programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.

- (c) Part III Re-Examination
 - (i) A candidate who has failed the Part III Examination may be permitted a re-examination on two separate occasions at six monthly intervals.
 - (ii) The Part III Re-Examination shall consist of the components that the candidate had failed in and shall be assessed and graded in the same manner as prescribed for the Part III Examination.
 - (iii) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Part III Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.
- (d) A candidate who has passed the re-examination for the Examinations shall be deemed to have passed the prescribed Examinations.

11. Award of Degree

(1) Award of the Degree of Master of Family Medicine

A candidate shall meet the following requirements for the purpose of graduation for the programme of Master of Family Medicine:

- (a) passes the prescribed Examination for the Master's Degree programme by Clinical concerned;
- (b) fulfils other requirements set by the Faculty, if any, for the Master's Degree programme by Clinical concerned;
- (c) fulfils the language requirements, if any, as prescribed; and
- (d) fulfils other requirements approved by Senate from time to time.

(2) Award of the Degree of Master of Family Medicine (With Distinction)

A candidate may be awarded the degree of Master of Family Medicine (With Distinction) if he/she -

- (a) has passed with Distinction in the Part II Examination and the Part III Examination; and
- (b) has not failed and has not repeated any component of the prescribed Examination or any parts of the study programme within the set time period except on medical or compassionate grounds acceptable to the Faculty.

MASTER OF FAMILY MEDICINE PROGRAMME SCHEDULE

S T A G E III	Year 4	<ul style="list-style-type: none"> Advanced Training in Family Medicine 	Part III Examination
S T A G E II	Year 3 Year 2	<ul style="list-style-type: none"> Clinical Training in Family Medicine – 18 months Six months of speciality posting, one month each in the following discipline: <ul style="list-style-type: none"> Psychological medicine Surgery Orthopaedic Surgery Ophthalmology Otorhinolaryngology Elective (e.g. dermatology) 	Part II Examination
S T A G E I	Year 1	<ul style="list-style-type: none"> Clinical Training by rotation in:- <ul style="list-style-type: none"> General Medicine Paediatrics Obstetrics and Gynaecology 	Part I Examination Registration (Entrance Evaluation)

Name of Programme : Master of Internal Medicine
Faculty : Faculty of Medicine

1. Classification of Programme

The Master of Internal Medicine programme is a clinical coursework programme in which the research component comprises less than thirty (30) percent of the whole programme of study.

2. Entry Requirements

(1) Entry qualifications

- (a) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or an equivalent medical qualification approved by the Senate;
and
- (b) At least one (1) year of clinical experience after graduation of the Bachelor's Degree and obtain full registration as a registered medical practitioner.

(2) Other requirements

- (a) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
- (b) Pass the required entrance evaluation

(3) English requirement

The Non-Malaysian applicant whose degree is from university or institution of higher learning that did not use English as the medium of instruction for that degree shall be required:

Type of English Qualifications		Minimum Score
International English Language Testing (IELTS)		6
<i>Test of English as a Foreign Language (TOEFL)</i>	IBT (<i>Centre based</i>)	60
	IBT <i>Essentials</i>	8.5
<i>Pearson Test of Academic English (PTE)</i>		59
<i>Cambridge English Qualifications and Tests</i>	<i>B1 Preliminary, B2 First, C1 Advanced, C2 Proficiency</i>	169
	<i>Lingua skill Online</i>	169
	<i>Occupational English Test (OET) (Conventional/Online)</i>	250

3. Duration of Study

- (1) The minimum duration of study shall be four years.
- (2) The maximum duration of study shall be seven years.

4. Structure of Programme

- (1) The programme of study comprises three (3) stages as follows:
 - (a) Stage I in the first year comprising:
 - (i) the study of basic sciences relevant to the practice of internal medicine; and
 - (ii) clinical clerkship under supervision with emphasis on emergency medicine.
 - (b) Stage II in the second and third year comprising:
 - (i) rotational postings of three months duration each in the following eight disciplines of clinical medicine:

Cardiology
Nephrology
Neurology
Respiratory Medicine
Gastroenterology and Hepatology
Haematology and Oncology
Endocrinology
Rheumatology and Infectious Diseases and Dermatology

and
 - (ii) a research project
 - (c) Stage III in the fourth year comprising posting in an approved subspeciality or in general medicine in the Faculty or a recognised centre outside the Faculty
- (2) No candidate shall be permitted to proceed to Stage III of the programme of study unless he/she has passed Internal Medicine Qualifying Examination (IMQA).
- (3) Progress of the candidate from one stage to another is dependent on a satisfactory assessment of annual evaluation report (training portfolio).

5. Registration

Registration for the programme of study shall commence for two (2) weeks after the start of the academic session.

6. Attendance

During his/her programme of study -

- (1) A candidate may be permitted to undertake part of his/her training in other hospitals or centres recognised by the Faculty;
- (2) A candidate who has been absent for a period exceeding forty-two (42) days in any academic year shall be required to undertake an extended period of training to be determined by the Faculty; provided always that the extended period of training shall not exceed the maximum period of candidature.

7. Supervision

- (1) The supervisor for the candidate shall be appointed no later than two (2) months after the initial registration of the candidate.
- (2) A consultant shall be appointed for a candidate who undertakes part of his/her programme of study outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.

8. Title of Research

The research project for a candidate shall be determined by the Department responsible for the candidate's programme of study not later than one month prior to the commencement of the research.

9. Submission

- (1) A candidate is required to submit training portfolio one (1) month before the Internal Medicine Qualifying Examination (IMQA).
- (2) A candidate is required to submit his/her research report one (1) month before the end of his/her study programme.

10. Examinations for the Degree

- (1) The Examinations leading to the degree shall be as follows:
 - (a) Internal Medicine Qualifying Examination (IMQA)
- (2) No candidate shall be permitted to sit for the Internal Medicine Qualifying Examination (IMQA) unless he/she has submitted training portfolio one (1) month before the Internal Medicine Qualifying Examination (IMQA).
- (3) The theory examination will be held 6 weeks before the clinical examination. The Theory examination is usually held in March/April and September/October. The Clinical examination will be held after the theory paper which is in May/June and November/December.
- (4) Examination Components and Allocation of Marks
 - (a) Internal Medicine Qualifying Examination (IMQA)

Subject	Description	Allocation of Marks (Maximum)
A. Theory	Paper 1A One Best Answer	20%
	Paper 1B Questions EMQ	20%
	TOTAL	40%
B. Clinical	Clinical 1 Long Case	25%
	Clinical 2 Short Case	35%
	TOTAL	60%
Grand Total		100%

(5) Requirements for Passing an Examination

A candidate shall be deemed to have passed the Examinations mentioned below if he/she has obtained:

(a) Internal Medicine Qualifying Examination (IMQA):

- (i) 50% or more of the marks for each component (theory and clinical component); and
- (ii) Must pass at least 3 clinical short case; and
- (iii) Must obtain 50% or more of the marks for at least one clinical long case.

The theory examination will be held 6 weeks before the clinical examination. Only candidates that passes the theory examination, Component A, will be allowed to sit the clinical examination, i.e. Component B. A candidate who fails the clinical examination will not have to re-sit the theory examination before attempting the clinical examination again.

(6) Pass the Examination with Distinction

A candidate may be obtained a Pass with Distinction in the Internal Medicine Qualifying Examination (IMQA) if he/she –

- (a) has obtained 75% or more of the aggregate marks in each of the prescribed Internal Medicine Qualifying Examination (IMQA);
- (b) has not failed in any component of the prescribed Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

(7) Repeating an Examination

(a) Internal Medicine Qualifying Examination (IMQA):

- (i) A candidate is allowed to re-sit for the re-examination at the six (6) months interval. Candidate is allowed to sit for the re -examination without limit to the number of attempts until the maximum candidature period or the extension candidature period is approved.
- (ii) A candidate who pass the Component A (Written) Examination but fail Component B (Cinical and Viva) are allowed to sit for the Re - Examination for Component B (Clinical and Viva) without having to take the Component A (Written) examination.
- (iii) A candidate who has reach the maximum candidature period or the approved extension period of candature and still fail any of the component of the Internal Medical Qualification Examination (IMQA) e shall be deemed to have failed and terminated from the programme. Candidates are not allowed to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of the Senate.

- (d) A candidate who has passed the re-examination for the Examinations shall be deemed to have passed the prescribed Examinations.

11. Award of Degree

(1) Award of the Degree of Master of Internal Medicine

A candidate shall meet the following requirements for the purpose of graduation for the programme of Master of Internal Medicine:

- (a) passes the prescribed Examination for the Master's Degree programme by Clinical concerned;
- (b) fulfils other requirements set by the Faculty, if any, for the Master's Degree programme by Clinical concerned;
- (c) fulfils the language requirements, if any, as prescribed; and
- (d) fulfils other requirements approved by Senate from time to time.

(2) Award of the Degree of Master of Internal Medicine (With Distinction)

A candidate may be awarded the degree of Master of Internal Medicine (With Distinction) if he/she –

- (a) has passed with Distinction in Internal Medicine Qualifying Examination (IMQA); and
- (b) has not failed and has not repeated any component of the Examination or any part of the programme of study within the prescribed period except on medical or compassionate grounds accepted by the Faculty.

MASTER OF INTERNAL MEDICINE PROGRAMME SCHEDULE

STAGE III	Year 4	Speciality training in one of the small speciality fields with at least 6 months in General Medicine	Submit his/her research report one month before the end of his/her study programme. Submit a satisfactory training portfolio.
	Year 3 Year 2	Rotational posting in small specialities	Internal Medical Qualification Examination (IMQA) Submit a satisfactory training portfolio
STAGE I	Year 1	Applied Basic Medical Sciences and General Medicine and Emergency Medicine	Submit a satisfactory training portfolio

Name of Programme : Master of Obstetrics and Gynaecology
Faculty : Faculty of Medicine

1. Classification of Programme

The Master of Obstetrics and Gynaecology Programme is a clinical coursework programme in which the research component comprises less than thirty (30) percent of the whole programme of study.

2. Entry Requirements

(1) Entry Qualifications

- (a) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or equivalent medical qualifications approved by the Senate; and
- (b) At least one year of post-full registration clinical experience approved by the Senate.

(2) Other requirements

- (a) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
- (b) Passed the entrance evaluation and successful interview

(3) English requirement

The Non-Malaysian applicant whose degree is from university or institution of higher learning that did not use English as the medium of instruction for that degree shall be required:

Type of English Qualifications		Minimum Score
International English Language Testing (IELTS)		6
Test of English as a Foreign Language (TOEFL)	IBT (Centre based)	60
	IBT Essentials	8.5
Pearson Test of Academic English (PTE)		59
Cambridge English Qualifications and Tests	B1 Preliminary, B2 First, C1 Advanced, C2 Proficiency	169
	Lingua skill Online	169
	Occupational English Test (OET) (Conventional/Online)	250

3. Duration of Study

- (1) The minimum duration of study shall be four years.
- (2) The maximum duration of study shall be seven years.

4. Structure of Programme

- (1) The programme of study comprises of three (3) stages as follows
 - (a) **Stage** (Year 1) comprises:
 - (i) twelve (12) months of training in basic Clinical Obstetrics and Gynaecology.
 - (ii) plan and commence research project(s).
 - (b) **Stage II (Year 2 & 3)** comprises intermediate to advanced clinical training in Obstetrics and Gynaecology for a period of twenty -four (24) months in which the candidate shall:
 - (i) improve trainees' skills to acquire proficiency in clinical care and surgical procedures (record cases into training portfolio)
 - (ii) complete a research report
 - (iii) continues assessment from the Department and supervisors
 - (c) **Stage III (Year 4)** comprises advanced clinical training in Obstetrics and Gynaecology for a period of twelve (12) months where the candidate must:
 - (i) demonstrate competence and ability in patient treatment and submit research report and certified satisfactory by supervisor before completion of study period.
 - (ii) submit a satisfactory training portfolio and certified by his supervisor two (2) months before completion of study period
 - (iii) submit a research report six (6) months prior to the Final examination.
- (2) Candidates must pass the Part I Examination prior to advancement to the Final Examination.

5. Registration

Registration for the programme of study shall commence for two (2) weeks after the start of the academic session.

6. Attendance

During his/her programme of study -

- (1) a candidate may be permitted to undertake part of his/her training in other hospitals or centres recognised by the Faculty.
- (2) a candidate who has been absent for a period exceeding forty-two (42) days in any academic year shall be required to undertake an extended period of training to be

determined by the Faculty; provided that the extended period of training shall not exceed the maximum period of candidature.

7. Supervision

- (1) The supervisor for a candidate shall be appointed not later than two (2) months after the initial registration of the candidate.
- (2) A consultant shall be appointed for a candidate who undertakes part of his/her programme of study outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.

8. Title of Research

The research project(s) must be approved by the Department of Obstetrics and Gynaecology, Faculty of Medicine, University of Malaya and the ethics committee (where project is undertaken) prior to its commencement.

9. Submission

- (1) Candidates are required to submit a Research Report that is certified satisfactory by the supervisor. (3) months before graduation.
- (2) Candidates are required to submit a training portfolio that is certified satisfactory by their supervisor for the period of study two (2) months before graduation.

10. Examinations for the Degree

- (1) The Examinations leading to the degree shall be as follows:
 - (a) the Part I Examination;
 - (b) the Final Examination
- (2) No candidate shall be permitted to sit for the Final Examination unless he /she has -
 - (a) pass the Part I Examination;
 - (b) achieve satisfactory progress in continuous assessment from department and supervisor;
 - (c) submit satisfactory training portfolio certified satisfactory by the supervisor two (2) months before end of study period.
- (3) Part I Examination shall be held at about thirty-six (36) months into the programme. The final examination shall be held six (6) months after passing the part 1 examination.
- (4) Examination Components and Allocation of Marks
 - (a) Part I Examination

The components of the Part I Examination and the marks to be allocated to each component shall be as follows:

Component	Description	Allocation Mark (Maximum)
A. Obstetrics		
	(50 SBA+ 30 EMQ) Multiple Choice Questions	60%

CPC	40%
Clinicopathological correlation	
Total	100%

B. Gynaecology

(50 SBA+ 30 EMQ)	60%
Multiple Choice Question	
CPC	40%
Total	100%

(a) Final Examination

The components of the Final Examination and the marks to be allocated to each component shall be as follows (using the close marking system):

Component	Description	Allocation Mark (Maximum)
A. Final Progressive Evaluation		10%
B. Objective Structured Clinical Examination (OSCE)		50%
C. Modified Long Case		40%
Total		100%

(5) Requirements for Passing an Examination

A candidate shall be deemed to have passed the Examinations prescribed below if he/she has obtained -

(a) Part I Examination

- (i) 50% or more of the aggregate marks of the components A and B.

(b) Final Examination

- (i) 50% or more of the aggregate marks for Component A
- (ii) 50% or more of the aggregate marks for component B; and the candidate passing at least 6 stations out of 12 OSCE stations; and
- (iii) 50% or more of the aggregate marks for component C

Candidates need to pass Component A, before allowed to sit for Component B and C of the Final Examination

(6) Pass the Examination with Distinction

A candidate may be obtained a Pass with Distinction in the Part I Examination and the Final Examination if he/she –

- (a) has obtained 75% or more of the aggregate marks in each of the prescribed Examination;
- (b) has not failed in any component of the prescribed Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

(7) Repeating an Examination

(a) Part I Re-Examination

- (i) The Part I Re -Examination shall contain the same components and shall be assessed and graded in the same manner as is prescribed for the Part I Examination.

Candidates are allowed to repeat the Re -Examination after a period of six months.

Candidates are allowed to advance to the next semester if they fail the examination.

- (ii) Candidates who have failed the Part I Examination may be allowed to repeat the Re-Examination until the 13th semester (in the 7th year of study). Candidates who have failed the Part I Examination in the 13th semester (in the 7th year of study) shall be deemed to have failed and shall not be allowed to repeat the program.

If a candidate passes the Part I Examination in the 13th semester, the candidate is only allowed to sit for the Final Part examination once. Candidates who have failed the Final Examination shall be deemed to have failed to program and shall not be allowed to repeat the examination.

- (iii) A candidate who fails the Part I Re-Examination on the second occasion shall be deemed to have failed the Part I Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.

(b) Final Re-Examination

- (i) The Final Re -Examination shall contain the same components and shall be assessed and graded in the same manner as is prescribed for the Final Examination.

Candidates are allowed to repeat the Re -Examination after a period of six months.

- (ii) Candidates who have failed the Final Examination may be allowed to repeat the Examination four (4)* times and not later than the 12th semester.

*Candidates must repeat the Part I Examination if they fail the 4th Final Examination. Candidates must pass the Part I examination within the prescribed period as per rule 10 (7)(a). Candidates are allowed to sit for the Final Examination in the same semester after passing the Part I Examination.

- (iii) Candidates must pass the Final Examination no later than the 14th Semester (in the 7th year of study). Candidates who have failed the Final Examination shall be deemed to have failed the program and shall not be allowed to repeat the examination.

- (c) A candidate who has passed the re-examination for the Examinations shall be deemed to have passed the respective prescribed Examinations.

11. Award of Degree

(1) Award of the Degree of Master of Obstetrics and Gynaecology

A candidate shall meet the following requirements for the purpose of graduation for the programme of Master of Obstetrics and Gynaecology:

- (a) passes the prescribed Examination for the Master's Degree programme by Clinical concerned;
- (b) fulfils other requirements set by the Faculty, if any, for the Master's Degree programme by Clinical concerned;
- (c) fulfils the language requirements, if any, as prescribed; and
- (d) fulfils other requirements approved by Senate from time to time.

(2) Award of the Degree of Master of Obstetrics and Gynaecology (With Distinction)

A candidate may be awarded the degree of Master of Obstetrics and Gynaecology (With Distinction) if he/she –

- (a) has passed with Distinction in the Final Examination; and
- (b) has not failed and has not repeated any component of the Examination or any part of the programme of study within the prescribed period except on medical or compassionate

MASTER OF OBSTETRICS AND GYNAECOLOGY PROGRAMME SCHEDULE

STAGE III	Year 4	<ul style="list-style-type: none"> Year 4 covers advanced clinical training in O&G (duration of 12 months) 	Final examination at 42 months of programme
STAGE II	Year 2 & 3	<ul style="list-style-type: none"> Year 2 & 3 cover intermediate phase to advanced clinical training of O&G (duration of 24 months) 	<p>Continuous assessment & assessment of portfolio and clinical log cases</p> <p>Part 1 examination at 36 months programme</p>
STAGE I		Twelve (12) months of training in basic Clinical Obstetrics and Gynaecology which may include a maximum six (6) months of elective training in a relevant discipline.	<p>Registration</p> <p>(Entrance Evaluation)</p>

Name of Programme : Master of Ophthalmology
Faculty : Faculty of Medicine

1. Classification of Programme

The Master of Ophthalmology programme is a clinical coursework programme in which the research component comprises less than thirty (30) percent of the whole programme of study.

2. Entry Requirements

(1) Entry qualifications

- (a) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or an equivalent medical qualification approved by the Senate; and
- (b) At least one (1) year of clinical experience after completing the Bachelor's degree

(2) Other requirements

- (a) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
- (b) Pass the entrance evaluation and interview.

(3) English requirement

The Non-Malaysian applicant whose degree is from university or institution of higher learning that did not use English as the medium of instruction for that degree shall be required:

Type of English Qualifications		Minimum Score
International English Language Testing (IELTS)		6
<i>Test of English as a Foreign Language (TOEFL)</i>	IBT (<i>Centre based</i>)	60
	IBT <i>Essentials</i>	8.5
<i>Pearson Test of Academic English (PTE)</i>		59
<i>Cambridge English Qualifications and Tests</i>	<i>B1 Preliminary, B2 First, C1 Advanced, C2 Proficiency</i>	169
	<i>Lingua skill Online</i>	169
	<i>Occupational English Test (OET) (Conventional/Online)</i>	250

3. Duration of Study

- (1) The minimum duration of study shall be four years.
- (2) The maximum duration of study shall be seven years.

4. Structure of Programme

- (1) The programme comprises three (3) stages as follows:
 - (a) Stage I, in the first year of study, comprising training in the basic medical sciences, basic ocular sciences, basic ophthalmology, related medical and surgical disciplines as well as preparation of training portfolio;
 - (b) Stage II, in the second and third year of study, comprising clinical ophthalmology training, medical postings and preparation of training portfolio which shall be as determined by the Department from time to time; and
 - (c) Stage III, in the fourth year of study comprising advanced clinical training in Ophthalmology, a research project and preparation of training portfolio.
- (2) A candidate shall keep a training portfolio throughout his/her period of study to document tasks undertaken.
- (3) No candidate shall be permitted to proceed to Stage II of the programme of study unless he/she has passed the Part I Examination.
- (4) No candidate shall be permitted to proceed to Stage III of the programme of study unless he/she has passed the Part II Examination.

5. Registration

- (1) Registration for the programme of study shall commence for two (2) weeks after the start of the academic session.
- (2) All candidates must complete the minimum 4 years of training for the programme of the study

6. Attendance

During his/her programme of study –

- (1) a candidate may be permitted to undertake part of his/her training in other hospitals or centres recognised by the Faculty;
- (2) a candidate who has been absent for a period exceeding forty-two (42) days in any academic year shall be required to undertake an extended period of training to be determined by the Faculty; provided always that the extended period of training shall not exceed the maximum period of candidature.

7. Supervision

- (1) The supervisor for a candidate shall be appointed not later than two (2) months after the initial registration of the candidate.
- (2) A consultant shall be appointed for a candidate who undertakes part of his/her programme of study outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.

8. Title of Research

The research project for a candidate shall be determined by the Department responsible for the candidate's programme of study not later than one month prior to the commencement of the research.

9. Submission

A candidate is required to submit his/her -

- (1) research report not later than six (6) months before the Final Examination; and
- (2) training portfolio one (1) month before the Final Examination.

10. Examinations for the Degree

- (1) The Examinations leading to the degree shall be as follows:
 - (a) the Part I Examination;
 - (b) the Part II Examination; and
 - (c) the Final Examination.
- (2) No candidate shall be permitted to sit for the Part I Examination unless he/she –
 - (a) has passed the Stage 1 training portfolio
- (3) No candidate shall be permitted to sit for the Part II Examination unless –
 - (a) has passed the Part I Examination.
 - (b) has passed the Stage 2 training portfolio
- (4) No candidate shall be permitted to appear for the Final Examination unless he/she has-
 - (a) passed the Part II Examination;
 - (b) has passed the Stage 3 training portfolio
 - (c) submitted the research report not later than six (6) months before the Final Examination; and
 - (d) submitted the training portfolio that has been certified as satisfactory by the Department one (1) month before the Final Examination.
- (5) The Part I Examination shall be held at the end of Stage I of the programme of study. The Part II Examination shall be held at the end of the second year of Stage II of the programme of study. The Final Examination shall be held at the end of the fourth year of the programme of study.
- (6) Examination Components and Allocation of Marks
 - (a) Part I Examination

The components of the Part I Examination and the marks to be allocated to each component shall be as follows:

Component	Description	% contribution to total marks	
A. Written	Paper 1	Multiple Choice Questions	25
	Paper 2	Multiple Choice Questions	<u>25</u>
	Total		50
B. Practical	OSCE	Objective Structured Clinical and Practical Examination (Ophthalmology)	30
	OSCE	Objective Structured Clinical and Practical Examination (Optics and Refraction)	<u>20</u>
	Total		50
	Grand Total		<u>100</u>

(b) Part II Examination

The components of the Part II Examination and the marks to be allocated to each component shall be as follows:

Component	Description	% contribution to total marks	
A. Written	Paper 1	Multiple Choice Questions	15
	Paper 2	Essay Questions	<u>15</u>
	Total		30
B. Clinical	Extended OSCE	Ophthalmology General Medicine in relation to Ophthalmology	40
C. Viva Voce	Viva	Ophthalmology General Medicine in relation to Ophthalmology	30
	Grand Total		<u>100</u>

(c) Final Examination

The components of the Final Examination and the marks to be allocated to each component shall be as follows:

Component	Description	Allocation of Marks (Maximum)
A.	Research Report and Viva	<u>100</u>
	Total	<u>100</u>

(7). Requirements for Passing an Examination

A candidate shall be deemed to have passed the Examinations prescribe below if he/she has obtained:

(a) Part I Examination

- (i) 50% or more of the marks for each component of the Examination.

b) Part II Examination

- (i) 50% or more of the marks for each component of the Examination;
- (ii) The theory examination (Component A) will be held 1 month before the clinical and viva examination (Component B & C). Only candidates who pass the Component A will be allowed to sit for Component B & C.
- (iii) A candidate who fails the Component B and / or C will not have to re-sit the Component A. Both components B and C have to be repeated.

(c) Final Examination

50% or more of the marks for each component for the Examination.

(8) Pass the Examination with Distinction

A candidate may be obtained a Pass with Distinction in the Part I Examination, the Part II Examination and the Final Examination if he/she –

- (a) has obtained 75% or more of the aggregate marks in each of the prescribed Examinations;
- (b) has not failed in any component of the prescribed examination; and
- (c) has not repeated the prescribed examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

(9) Repeating an Examination

(a) Part I Re-Examination

- (i) A candidate who has failed the Part I Examination may be permitted a re-examination on two separate occasions at six monthly intervals.
- (ii) The Part I Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Part I Examination.
- (iii) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Part I Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.

(b) Part II Re-Examination

- (i) A candidate who has failed the Component A (theory) of the Part II Examination may be permitted a re-examination on two separate occasions at six monthly intervals.
- (ii) A candidate who passes the Component A but failed Component B (Clinical) and/or C (Viva) may be permitted for re-examination on two separate occasions within two years of passing Component A, at six months intervals without having to re-sit Component A of the Part II Examination.
- (iii) A candidate who fails Component B only or Component C only, will have to re-sit both components of the re-examination.
- (iv) A candidate who passes Component A but attempts for Component B & C after two years of passing Component A, will have to re-sit Component A of the re-examination.
- (v) A candidate who fails the second re-examination for Component A shall be deemed to have failed the Part II Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Senate.
- (vi) A candidate who passes the re-examination for Component A is allowed to sit for Component B & C for three times. A candidate who fails Component B & / or C for the third trial shall be deemed to have failed the Part II examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Senate.
- (vii) A candidate must pass the Part II examination before/on the sixth year of the the study to enable one year of study before the Final Assessment.

(c) Final Re-Examination

- (i) A candidate whose research report—is deemed unsatisfactory by the Committee of Examiners may be referred for further work in his research report over a period of time to be determined by the Committee of Examiners except that such period of time as determined shall not exceed six (6) months on any occasion. At the end of the prescribed period the candidate shall be required to submit research report for re-examination. A candidate who fails to submit his research report by the end of the prescribed period for re-examination shall be deemed to have failed the research report.
 - (ii) A candidate shall be permitted to submit research report for re-examination on not more than two occasions.
 - (iii) A candidate who fails the research report on the second re-examination shall be deemed to have failed the Final Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.
- (d) A candidate who has passed the re-examination for the examinations shall be deemed to have passed the prescribed Examinations.

11. Award of Degree

(1) Award of the Degree of Master of Ophthalmology

A candidate shall meet the following requirements for the purpose of graduation for the programme of Master of Ophthalmology:

- (a) passes the prescribed Examination for the Master's Degree programme by Clinical concerned;
- (b) fulfils other requirements set by the Faculty, if any, for the Master's Degree programme by Clinical concerned;
- (c) fulfils the language requirements, if any, as prescribed; and
- (d) fulfils other requirements approved by Senate from time to time.

(2) Award of the Degree of Master of Ophthalmology (With Distinction)

A candidate may be awarded the degree of Master of Ophthalmology (With Distinction) if he/she -

- (a) has passed with Distinction in the Part II Examination and the Final Examination; and
- (b) has not failed in any component of the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

MASTER OF OPHTHALMOLOGY PROGRAMME SCHEDULE

STAGE III	Year 4	<ul style="list-style-type: none"> Advanced clinical Ophthalmology 	Final Examination
STAGE II	Year 3	<ul style="list-style-type: none"> Clinical Ophthalmology 	Part II Examination
	Year 2	<ul style="list-style-type: none"> Clinical Ophthalmology 	
STAGE I	Year 1	<ul style="list-style-type: none"> Basic Sciences Basic Ocular Sciences Basic Ophthalmology 	Part I Examination
			Registration (Entrance Evaluation)

Name of Programme : Master of Orthopaedic Surgery
Faculty : Faculty of Medicine

1. Classification of Programme

The Master of Orthopaedic Surgery programme is a clinical coursework programme in which the research component comprises less than thirty (30) percent of the whole programme of study.

2. Entry Requirements

(1) Entry qualifications

- (a) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or an equivalent medical qualification approved by the Senate; and
- (b) At least six (6) months clinical experience in orthopaedic surgery post-full registration as approved by the Senate.

(2) Other requirements

- (a) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
- (b) Pass the entrance assessment set by the department;
- (c) Candidates who are non-Malaysian citizens will be required to undertake a three (3) months period of clinical attachment in the Department of Surgery Orthopedic Universiti Malaya Medical Centre (UMMC) prior to acceptance into the programme.

(3) English Requirement

The Non-Malaysian applicant whose degree is from university or institution of higher learning that did not use English as the medium of instruction for that degree shall be required:

Type of English Qualifications		Minimum Score
International English Language Testing (IELTS)		6
Test of English as a Foreign Language (TOEFL)	IBT (Centre based)	60
	IBT Essentials	8.5
Pearson Test of Academic English (PTE)		59
Cambridge English Qualifications and Tests	B1 Preliminary, B2 First, C1 Advanced, C2 Proficiency	169
	Lingua skill Online	169
	Occupational English Test (OET) (Conventional/Online)	250

3. Duration of Study

- (1) The minimum duration of study shall be four years.
- (2) The maximum duration of study shall be seven years.

4. Structure of Programme

- (1) The programme of study comprises two (2) stages as follows:
 - (a) Stage I comprising twelve (12) months in Orthopaedic Surgery providing teaching/training in basic and applied medical sciences, principles of surgery, basic orthopaedic surgery and orthopaedic traumatology.
 - (b) Stage II comprising thirty-six (36) months in Orthopaedic Surgery including rotation through the following sub-specialities:
 - Spinal Surgery
 - Orthopaedic Oncology
 - Paediatric Orthopaedics
 - Upper limb and reconstructive and micro surgery
 - Arthroscopy sports and joint reconstructive surgery
 - Arthroplasty
 - Orthopaedic Traumatology
 - Limb Lengthening and reconstructive surgery
 - Foot and ankle surgery
- (2) A candidate is required to keep a training portfolio throughout his period of study to document tasks undertaken.

5. Registration

Registration for the programme of study shall commence for two (2) weeks after the start of the academic session.

6. Attendance

During his/her programme of study -

- (1) a candidate may be permitted to undertake part of his/her training in other hospitals or centres recognised by the Faculty;
- (2) a candidate who has been absent for a period exceeding forty-two (42) days in any academic year shall be required to undertake an extended period of training to be determined by the Faculty; provided always that the extended period of training shall not exceed the maximum period of candidature.

7. Supervision

- (1) The supervisor for a candidate shall be appointed not later than two (2) months after the initial registration of the candidate
- (2) A consultant shall be appointed for a candidate who undertakes part of his/her programme of study outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.

8. Title of Research

The research project for a candidate shall be identified not later than one (1) month prior to the commencement of the research.

9. Submission

- (1) A candidate is required to submit his training portfolio which is satisfactory and approved by the supervisor not later than four (4) months prior to the Final Examination.
- (2) A candidate is required to submit his/her research report not later than six months before the Final Examination.

10. Examinations for the Degree

- (1) The Examinations leading to the degree shall be as follows:
 - (a) the Final Examination
- (2) No candidate shall be permitted to sit for the Final Examination unless he/she has submitted-
 - (a) his/her training portfolio consisting of surgery observed, assisted and performed for the duration of the course and ten reports on cases managed under supervision in various subspecialties, to be certified by his supervisor and deemed satisfactory by a panel of assessors to be appointed by Head of Department responsible for the candidate's programme of study, not later than two months before the Final Examination; and
 - (b) His/her research report not later than six months before the Final Examination. The research report must be certified as satisfactory by a panel of assessors to be appointed by Head of Department responsible for the candidate's programme of study before the candidate is permitted to sit the Final Examination.
 - (c) no candidate should be permitted to sit for the Final Examination unless candidate has :
 - (i) Attended and complete the "Orthopaedic Clinical Master Research Program" from session 2015/2016 onward
 - (ii) Completed training portfolio
 - (iii) Submitted acceptable case report for each subspecialty
 - (iv) Passed all end of posting subspecialty tests (11 end of posting tests)
 - (v) Passed operative skill assessment
- (3) Examination Components and Allocation of Marks
 - (a) Final Examination

The components of the Final Examination and the marks to be allocated to each component shall be as follows:

Component	Description	Allocation of Marks (Maximum)
A. Written	Essay Paper 1	50
	Essay Paper 2	50
	Best Answer Question (BAQ)	100
	Total	<u>200</u>
B. Clinical	Long Cases	100
	Short Cases	100
	Total	<u>200</u>

C. Viva Voce and OSCE

OSCE	
Pathology, Biomechanics and implants, Orthotics and prosthetics, Imaging	100
Viva Voce 1	100
Principles of Orthopaedic Surgery	
Viva Voce 2	100
Operative Orthopaedics	
Total	300
Grand Total	<u>700</u>

(5) Requirements for Passing an Examination

A candidate shall be deemed to have passed the Examinations prescribed below if he/she has obtained:-

(a) Final Examination

50% or more of the marks for each component of the Examination

A minimum mark of 40% for both long cases and short cases in the clinical component

(6) Pass the Examination with Distinction

A candidate may be obtained a Pass with Distinction in the examination if he/she –

- (a) has obtained 75% or more of the aggregate marks in the prescribed Examination;
- (b) has not failed or repeated in any component of the prescribed Examination

(6) Repeating an Examination

(a) Final Re-Examination

- (i) A candidate who has failed the Final Examination may be permitted a re-examination on two separate occasions at six monthly intervals.
 - (ii) The Final Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Final Examination.
 - (iii) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Final Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.
- (b) A candidate who has passed the re-examinations for the shall be deemed to have passed the prescribed Examinations.

11. Award of Degree

(1) Award of the Degree of Master of Orthopaedic Surgery

A candidate shall meet the following requirements for the purpose of graduation for the programme of Master of Orthopaedic Surgery:

- (a) passes the prescribed Examination for the Master's Degree programme by Clinical concerned;
- (b) fulfils other requirements set by the Faculty, if any, for the Master's Degree programme by Clinical concerned;
- (c) fulfils the language requirements, if any, as prescribed; and
- (d) fulfils other requirements approved by Senate from time to time.

(2) Award of the Degree of Master of Orthopaedic Surgery (With Distinction)

A candidate may be awarded the degree of Master of Orthopaedic Surgery (With Distinction) if he/she -

- (a) has passed with Distinction in the Final Examination; and
- (b) has not failed in any component of the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

MASTER OF ORTHOPAEDIC SURGERY PROGRAMME SCHEDULE

STAGE II	Year 4	<ul style="list-style-type: none"> Training in Orthopaedic Surgery including rotation through the following subspecialties and a research report: <ul style="list-style-type: none"> Spinal Surgery Orthopaedic Oncology Paediatric Orthopaedics Upper limb and reconstructive and microsurgery Arthroscopy sports and joint reconstructive surgery Arthroplasty Orthopaedic Traumatology Limb Lengthening and reconstructive surgery Foot and Ankle Surgery 	Final Examination
	Year 3		
	Year 2		
STAGE I	Year 1	<ul style="list-style-type: none"> Orthopaedic Surgery (Basic and Applied Medical Sciences, Principles of Surgery, Basic Orthopaedic Surgery and traumatology) 	Part I Examination (At the end of the first six months of Stage I) Registration (Entrance Evaluation)

Name of Programme : Master of Otorhinolaryngology – Head & Neck Surgery
Faculty : Faculty of Medicine

1. Classification of Programme

The Master of Otorhinolaryngology – Head & Neck Surgery programme is a clinical coursework programme in which the research component comprises less than thirty (30) percent of the whole programme of study.

2. Entry Requirements

(1) Entry qualifications

- (a) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or an equivalent medical qualification approved by the Senate; and
- (b) At least one year of post-full registration clinical experience approved by the Senate.
(Priority to candidate's who has completed six (6) months in General Surgery as a Medical Officer after the internship training in any government hospitals).

(2) Other requirements

- (a) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
- (b) Satisfies the Department responsible for the candidate's programme of study in an Entrance Evaluation recognised by the Faculty.

(3) English Requirement

The Non-Malaysian applicant whose degree is from university or institution of higher learning that did not use English as the medium of instruction for that degree shall be required:

Type of English Qualifications		Minimum Score
International English Language Testing (IELTS)		6
Test of English as a Foreign Language (TOEFL)	IBT (Centre based)	60
	IBT Essentials	8.5
Pearson Test of Academic English (PTE)		59
Cambridge English Qualifications and Tests	B1 Preliminary, B2 First, C1 Advanced, C2 Proficiency	169
	Lingua skill Online	169
	Occupational English Test (OET) (Conventional/Online)	250

3. Duration of Study

- (1) The minimum duration of study shall be four years.
- (2) The maximum duration of study shall be seven years.

4. Structure of Programme

- (1) The programme of study comprises two stages as follows –
 - (a) Stage I comprising –
 - (i) Twelve (12) months of study in Basic Otorhinolaryngology including:
 - (A) Basic and Applied Medical Sciences and Principles of Surgery; and
 - (B) the keeping of a log book of the candidate's surgical procedures.
 - (b) Stage II comprising –
 - (i) Thirty six (36) months of study in Advanced Otorhinolaryngology including rotational placement in Oral and Maxillofacial Surgery, Neurosurgery and Plastic and Reconstructive Surgery and General Surgery;
 - (ii) involved in research project that bring the following results:
 - (A) Research Report
 - (B) At least one (1) journal article that has been accepted for publication in accordance with the criteria set by the Faculty prior to graduation
 - (C) one (1) audit project
 - (D) three (3) case report; and
 - (E) a satisfactory surgical procedure log book
 - (iii) Candidates may be exempted from General Surgery training provided that the candidates submit an application and is supported by documents showing that the candidates has served at least six (6) months in General Surgery as a Medical Officer prior to admission to the program of study.
 - (iv) Application or exemption for training in General Surgery shall not be considered for the following categories:
 - (A) Service as a Graduate Medical Officer
 - (B) Surgical training for basic subspecialties such as Orthopaedics, Cardiothoracic, Neurosurgery and Plastics.
- (2) No candidate shall be permitted to proceed to Stage II of the programme of study unless he/she has passed or been exempted from the Part I Examination.

5. Registration

Registration for the programme of study shall commence the week prior to the start of the academic session.

6. Attendance

During his/her programme of study -

- (1) A candidate may be permitted to undertake part of his/her training in other hospitals or centres recognised by the Faculty.
- (2) Candidates who are absent for a period exceeding twenty-one (21) days in a period of six (6) months are required to undertake an extended period of training to be determined by the Faculty; subject to the period of such advance training shall not exceed the maximum period of programme.

7. Supervision

- (1) The supervisor for a candidate shall be appointed not later than two months after the registration of the candidate.
- (2) A consultant shall be appointed for a candidate who undertakes part of his/her programme of study outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.

8. Title of Research

The research project for a candidate shall be determined by the Department responsible for the candidate's programme of study not later than one month prior to the commencement of the research.

9. Submission

Candidates are required to -

- (1) complete and submit the requirements as specified in paragraph 4 (b) (ii) A, C, D not later than six months and the log book not later than three months before the Final Examination.
- (2) submit the requirements as specified in paragraph 4 (b) (ii) B prior to graduation

10. Examinations for the Degree

- (1) The Examinations leading to the degree shall be as follows:
 - (a) the Part I Examination; and
 - (b) the Final Examination
- (2) No candidate shall be permitted to sit for the Final Examination unless he/she has -
 - (a) Complete and submit the requirements as specified in paragraph 4 (b)(ii) A, C,D not later than six months and the log book not later than three months before the Final Examination.
 - (b) passed the Part I examination. In the event of the candidate taking the third attempt for the Part I examination, a minimum of 3 years is required, to sit for the final examination after this attempt; or
 - (c) been exempted from the Part I Examination.

A candidate may be exempted from the Part I Examination if he/she has passed –

- (A) Final Examination for the Membership of any one of the following Royal Colleges:

The Royal College of Surgeons of Edinburgh
 The Royal College of Surgeons of England
 The Royal College of Physicians and Surgeons of Glasgow
 The Royal College of Surgeons in Ireland
 or

- (B) Sections B and C or Part II Examinations for Fellowship of any one of the following Royal Colleges:

The Royal College of Surgeons of Edinburgh
 The Royal College of Surgeons of England
 The Royal College of Physicians and Surgeons of Glasgow
 The Royal College of Surgeons in Ireland
 or

- (C) Part I Examination of the Royal Australasian College of Surgeons.

- (3) The Part I Examination shall be held at the end of the first six months of Stage I of the programme of study. The Final Examination shall be held at the end of Stage II of the programme of study.

- (4) Examination Components and Allocation of Marks

- (a) Part I Examination

The components of the Part I Examination and the marks to be allocated to each component shall be as follows:

Component	Description	Allocation of Marks (Maximum)
A. Written		
MIGL6101 Paper 1	Essay	300
MIGL6102 Paper 2	Multiple Choice Questions	200
MIGL6103 Paper 3	Multiple Choice Questions	200
	Total	<u>700</u>
B. Viva Voce		
MIGL6122	Anatomy	<u>100</u>
MIGL6123	Physiology	100
MIGL6124	Pathology and Principles of Surgery (including Medical Microbiology)	100
	Total	<u>300</u>
	Grand Total	<u>1000</u>

A candidate who obtains less than 50% in the theory component of the Part I Examination will not be permitted to sit for the viva voce.

(b) Final Examination

The components of the Final Examination and the marks to be allocated to each component shall be as follows:

Component	Description	Allocation of Marks (Maximum)
A. Written		
MIGL6236 Paper 1	Essay and Short Answer Type Questions	100
MIGL6237 Paper 2	Multiple Choice Questions	<u>100</u>
	Total	<u>200</u>
B. Clinical		
MIGL6244	Long Case	100
C. Short Cases		
MIGL6246	Otology	100
MIGL6247	Rhinology	100
MIGL6248	Laryngology	100
MIGL6249	Head & Neck Surgery	<u>100</u>
		<u>400</u>
D. Viva Voce		
MIGL6251	Paediatric ORL, Otology, Audiology & Neurotology	100
MIGL6252	Rhinology, Laryngology, Head & Neck Surgery	100
	Total	<u>200</u>
	Grand Total	<u>900</u>

(5) Requirements for Passing an Examination

A candidate shall be deemed to have passed the Examinations prescribed below if he/she has obtained:

(a) Part I Examination

- (i) 50% or more of the aggregate combined marks of all the components for the examination; and
- (ii) 50% or more of the marks for each component of the Examination; and
- (v) A minimum mark of 45% in each viva; and
- (vi) At least two vivas with a mark of 50% or more

(b) Final Examination

- (i) 50% or more of the marks for each component of the Examination; and
- (ii) Not less than 50% marks in three short cases; and
- (iii) Not less than 40% marks in any short cases; and

- (iv) 40.00% and above marks in Multiple Choice Questions (MIGL6237); and
 - (v) Not less than 40% marks in each viva component.
- (6) Repeating an Examination
 - (a) Part I Re-Examination
 - (i) A candidate who has failed the Part I Examination may be permitted a re-examination on two separate occasions at six monthly intervals.
 - (ii) The Part I Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Part I Examination. However, a candidate who has passed the written components previously will not be required to resit these components at the subsequent Part I Re-Examination.
 - (iii) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Part I Examination and shall not be permitted to repeat the programme of study except in special circumstances and on the recommendation of the Faculty of Medicine and with the approval of Senate.
 - (b) Final Re-Examination
 - (i) A candidate who has failed the Final Examination may be permitted a re-examination within seven (7) academic years at six monthly intervals.
 - (ii) The Final Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Final Examination. However, a candidate who passed Component A in the previous Final Examination, is allowed not to resit Component A, **only twice** in the next semester (six monthly) exam.
 - (iii) A candidate who fails the re-examination beyond seven (7) academic years shall be deemed to have failed the Final Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.
 - (c) A candidate who has passed the re-examination for the Examinations shall be deemed to have passed the prescribed Examinations.

11. Award of Degree

No candidate shall be recommended for the award of the Degree of Master of Otorhinolaryngology – Head & Neck Surgery unless he/she has successfully completed all parts of the course, completed the minimum duration of study and has passed the prescribed Examinations.

(1) Award of Pass with Distinction for the Examination

A candidate may be awarded a Pass with Distinction in the Part I Examination or the Final Examination if he/she –

- (a) has obtained 75% or more of the aggregate marks in each of the prescribed Examination;
- (b) has not failed in any component of the prescribed Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

(2) Award of the Degree with Distinction

A candidate may be awarded the degree of Master of Otorhinolaryngology - Head & Neck Surgery with Distinction if he/she -

- (a) has passed with Distinction in the Final Examination;
- (b) has not failed in any component of the prescribed Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

MASTER OF OTORHINOLARYNGOLOGY – HEAD & NECK SURGERY PROGRAMME SCHEDULE

S T A G E II	Year 4	<ul style="list-style-type: none"> Training comprising thirty six (36) months of study in Advance Otorhinolaryngology including rotational posting in Oral and Maxillofacial Surgery, Neuro-surgery and Plastic and Reconstructive Surgery and a research project in the field of Otorhinolaryngology. 	Final Examination
	Year 3		
	Year 2		
S T A G E I	Year 1	<ul style="list-style-type: none"> Basic Otorhinolaryngology twelve (12) months including: <ul style="list-style-type: none"> (i) Basic and Applied Medical Sciences and Principles of Surgery (6 months) (ii) General Surgery (6 months) 	Part I Examination (At the end of the first six months of Stage I) Registration (Entrance Evaluation)

Name of Programme : Master of Paediatrics
Faculty : Faculty of Medicine

1. Classification of Programme

The Master of Paediatrics programme is a clinical coursework programme in which the research component comprises less than thirty (30) percent of the whole programme of study.

2. Entry Requirements

(1) Entry qualifications

- (a) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or an equivalent medical qualification approved by the Senate; and
- (b) Minimum four (4) months working experience in a paediatric posting as either a house or medical officer

(2) Other requirements

- (a) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
- (b) A pass in entrance evaluation and required interview; or pass *Membership of the Royal College of Paediatrics and Child Health (MRCPCh) part 1b* (theory and science) or *2a* (applied knowledge).

(3) English requirements

The Non-Malaysian applicant whose degree is from university or institution of higher learning that did not use English as the medium of instruction for that degree shall be required:

Type of English Qualifications		Minimum Score
International English Language Testing (IELTS)		6
<i>Test of English as a Foreign Language (TOEFL)</i>	IBT (<i>Centre based</i>)	60
	IBT <i>Essentials</i>	8.5
<i>Pearson Test of Academic English (PTE)</i>		59
<i>Cambridge English Qualifications and Tests</i>	<i>B1 Preliminary, B2 First, C1 Advanced, C2 Proficiency</i>	169
	<i>Lingua skill Online</i>	169
	<i>Occupational English Test (OET) (Conventional/Online)</i>	250

3. Duration of Study

- (1) The minimum duration of study shall be four years.
- (2) The maximum duration of study shall be seven years except in special circumstances.

4. Structure of Programme

- (1) The programme of study comprises three (3) stages as follows:
 - (a) Stage I (Year 1) comprising basic clinical training in Basic Medical Sciences and General and Emergency Paediatrics;
 - (b) Stage II (Year 2 and 3) comprising of:
 - (i) Advanced training in the field of Paediatrics; and
 - (ii) A research projectand
 - (c) Stage III (Year 4) comprising of further advanced training in the field of Paediatrics and completion of the research project.
- (2) A candidate is required to keep a training portfolio throughout his/her period of study to document tasks undertaken.
- (3) No candidate shall be permitted to proceed to the Part II (Clinical Examination) unless he/she has passed from the Part I (Theory Examination).
- (4) A candidates may sit for the Final Examination (Research Report Presentation) even if the candidate has not passed the Part II (Clinical) Examination subject to the candidate obtaining written permission from the Head of Department on the supervisor's recommendation. However, the candidate must fulfil the structure of programme of study and meet the minimum duration of study for graduation purposes.

5. Registration

Registration for the programme of study shall commence for two (2) weeks after the start of the academic session.

6. Attendance

During his/her programme of study -

- (1) a candidate may be permitted to undertake part of his/her training in other hospitals or centres recognised by the Faculty.
- (2) a candidate who has been absent for a period exceeding forty-two (42) days in any academic year shall be required to undertake an extended period of training to be determined by the Faculty; provided always that the extended period of training shall not exceed the maximum period of candidature.

7. Supervision

- (1) The supervisor for a candidate shall be appointed not later than two (2) months after the initial registration of the candidate.
- (2) A consultant shall be appointed for a candidate who undertakes part of his/her programme of study outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.

8. Title of Research

The research project for a candidate shall be determined by the Department responsible for the candidate's programme of study not later than one month prior to the commencement of the research.

9. Submission

- (1) A candidate is required to submit his/her training portfolio that is satisfactory and approved by their supervisor for the respective period of study not later than one (1) month before the Part I (Theory) and Part II (Clinical) Examinations and the Final Examination (Research Report Presentation).
- (2) A candidate is required to submit his/her research report not later than two (2) weeks before the Final Examination (Research Report Presentation).

10. Examinations for the Degree

- (1) The Examinations leading to the degree shall be as follows:
 - (a) Part I (Theory) Examination;
 - (b) Part II (Clinical) Examination; and
 - (c) Final (Research Report Presentation) Examination.
- (2) No candidate shall be permitted to take the Part I (Theory) Examination unless he/she has –
 - (a) satisfactorily fulfilled the requirement for Year 1 Examination;
 - (b) obtained written certification from the Head of Department responsible for his programme of study to confirm that he has satisfactorily completed the prescribed training under supervision; and
 - (c) submitted his/her training portfolio not later than one month before the Part I (Theory) Examination.
 - (d) completed one year of enrolment into the program (first attempt), but not later than two years after enrolment into the program.
- (3) Part II (Clinical) Examination
 - (a) Candidate shall be permitted to take the Part II (Clinical) Examination after: –
 - (i) obtaining written certification from the Head of Department responsible for his programme of study to confirm that he has satisfactorily completed the prescribed training under supervision; and

- (ii) submitting his/her training portfolio not later than one month before the Part II (Clinical) Examination.
- (b) Part II (Clinical) examination can be taken six weeks after passing the Part I Examination (Theory).
- (4) No candidate shall be permitted to proceed to the Final (Research Report Presentation) Examination unless he/she has -
 - (a) Passed Part I (Theory) Examination.
 - (b) obtained written certification from the Head of Department responsible for his/her programme of study to confirm that he has satisfactorily completed the prescribed training under supervision;
 - (c) submitted his/her research report not later than two (2) weeks before the Final (Research Report Presentation) Examination;
 - (d) submitted his/her training portfolio not later than one (1) month before the Final (Research Report Presentation) Examination.

(5) Examination Components and Allocation of Marks

(a) Part I (Theory) Examination

The components of the Part I (Theory) Examination and the marks to be allocated for each component shall be as follows:

Component	Description	Allocation of Marks (Maximum)
A. Written		
Paper 1	Multiple Choice Questions	300
Paper 2	Modified Essay Questions/ (Long MEQ & Short MEQ)	250
	Slides	<u>50</u>
	Total	<u>600</u>

(b) Part II (Clinical) Examination

Part II (Clinical) Examination consists of the following components:

- 1 Classical Long Case
- 1 Observed Long Case
- 5 Short Cases
- 1 Communication station
- 1 Emergency station

(c) Final (Research Report Presentation) Examination

The component of the Final Examination and the marks to be allocated for the component shall be as follows:

Research report	100
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(6) Requirements for Passing an Examination

A candidate shall be deemed to have passed the Examinations prescribed below if he/she has obtained:

(a) Part I (Theory) Examination

50% or more of the aggregate combined marks for all the components of the Part I (Theory) Examination.

(b) Part II (Clinical) Examination

- (i) total marks ≥ 100 and
- (ii) Passes in either classical long case or observe long case

Allocation of Marks

Clear pass	12
Pass	10
Bare fail	8
Fail	4

(c) Final (Research Report Presentation) Examination

50% or more of the marks in the research report.

(7) Pass the Examination with Distinction

A candidate may obtain a Pass with Distinction in the Part I (Theory) Examination, the Part II (Clinical) Examination and the Final (Research Report Presentation) Examination if he/she:-

(a) Part I (Theory) Examination

- (i) has obtained 75% or more of the aggregate marks in each of the prescribed Examination;

(b) Part II (Clinical) Examination

- (i) Pass all stations and minimum total marks of 110, and
- (ii) Never fail a clinical exam, and
- (iii) There is no deferment in the programme of study except for medical reasons and is based on the discretion of the faculty;

(c) Final Examination (Research Report Presentation)

- (i) has obtained 75% or more marks

(8) Repeating an Examination

(a) Part I (Theory) Re-Examination

- (i) The Part I (Theory) Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Part I (Theory) Examination.

- (ii) There is no restriction to the total number of attempts, but the candidate must pass Part I Examination within four (4) years upon enrolment into the programme
 - (iii) A candidate who fail the Part I (Theory) examination within four (4) years upon enrolment into the program shall be deemed to have failed the Part I examination and shall not be permitted to continue the program.
- (b) Part II (Clinical) Re-Examination
 - (i) A candidate who has failed the Part II(Clinical) Examination may be permitted to sit for the examination at six (6) monthly interval.
 - (ii) The candidate has to resit the Part II(Clinical) Examination (1 Long Case (classic), 1 observed long case, 5 Short Cases, 1 Communication Station and 1 Emergency Station).
 - (iii) There is no limit to the number of attempts for Part II (Clinical) Examination, but the total duration of the course must not exceed seven (7) years inclusive of the final year for the research project.
- (c) Final Re-Examination (Research Report Presentation)
 - (i) A candidate whose research report is deemed unsatisfactory by the Committee of Examiners may be referred for further work in his/her research report over a period of time to be determined by the Committee of Examiners except that such period of time as determined shall not exceed six months on any one occasion. At the end of the prescribed period the candidate shall be required to submit his/her research report for re-examination. A candidate who fails to submit his/her research report by the end of the prescribed period for reexamination shall be deemed to have failed the research report.
 - (ii) A candidate shall be permitted to submit his/her research report for re-examination on not more than two occasions.
 - (iii) A candidate who fails the research report after the second re-examination shall be deemed to have failed the Final Examination (Research Report Presentation) and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.
- (d) A candidate who has passed the Re-Examination for the Examinations shall be deemed to have passed the prescribed Examinations.

11. Award of Degree

(1) Award of the Degree of Master of Paediatrics

A candidate shall meet the following requirements for the purpose of graduation for the programme of Master of Paediatrics:

- (a) passes the prescribed Examination for the Master's Degree programme by Clinical concerned;

- (b) fulfils other requirements set by the Faculty, if any, for the Master's Degree programme by Clinical concerned;
- (c) fulfils the language requirements, if any, as prescribed; and
- (d) fulfils other requirements approved by Senate from time to time.

(2) Award of the Degree of Master of Paediatrics (with Distinction)

A candidate may be awarded the degree of Master of Paediatrics (With Distinction) if he/she -

- (a) has passed with Distinction in the Part II Examination (Clinical) and the Final Examination (Research Report Presentation); and
- (b) has not failed and has not repeated any component of the Examination or any part of the programme of study within the prescribed period except on medical or compassionate grounds accepted by the Faculty.

**MASTER OF PAEDIATRICS
PROGRAMME SCHEDULE**

Stage III	Year 4	Advanced training in the field of paediatrics and completion of research project.	*Part I Examination (Theory) *Part II Examination (Clinical) *Final Examination (Research Report Presentation)
Stage II	Year 2 and 3	Advanced training in the field of paediatrics and completion of research project.	
Stage I	Year 1	Basic clinical training in Basic Medical Sciences and General and Emergency Paediatrics Registration (Entrance Examination)	

*Candidate shall be permitted to take the examination if satisfactorily fulfilled the requirements

Name of Programme : Master of Paediatric Surgery
Faculty : Faculty of Medicine

1. Classification of Programme

The Master of Paediatric Surgery programme is a clinical coursework programme in which the research component comprises less than thirty (30) percent of the whole programme of study.

2. Entry Requirements

(1) Entry qualifications

- (a) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or an equivalent medical qualification approved by the Senate; and
- (b) Has at least two years of relevant experience following full registration with the Malaysian Medical Council at the time of entry:
 - (i) This experience may include working in surgical specialties and paediatric medical specialties.
 - (ii) A minimum of 6 months prior experience in a paediatric surgical unit is highly recommended.

(2) Other requirements

- (a) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
- (b) Satisfies a recognised Entrance Evaluation in the institution responsible for the programme.
- (c) Evidence of the ability to safely perform the required Entry Essential Learning Activities (ELA).
- (d) A minimum of 6 months prior experience in a paediatric surgical unit is highly recommended.
- (e) A non-Malaysian applicant is required to undergo a minimum of six months' clinical attachment in a Malaysian paediatric surgical department prior to consideration for entry into advanced surgical training

(3) English requirements

The non-Malaysian applicant whose degree is from a university or institution of higher learning that did not use English as the medium of instruction for that degree shall be required to obtain any of the following:

Type of English Qualifications		Minimum Score
International English Language Testing (IELTS)		6
<i>Test of English as a Foreign Language (TOEFL)</i>	IBT (Centre based)	60
	IBT Essentials	8.5
<i>Pearson Test of Academic English (PTE)</i>		59
<i>Cambridge English Qualifications and Tests</i>	<i>B1 Preliminary, B2 First, C1 Advanced, C2 Proficiency</i>	169
	<i>Lingua skill Online</i>	169
	<i>Occupational English Test (OET) (Conventional/Online)</i>	250

3. Duration of Study

- (1) The minimum duration of study shall be four years.
- (2) The maximum duration of study shall be seven years.

4. Structure of the Programme

The programme of study comprises two (2) stages as follows:

- (1) Stage I (Basic Clinical Training) in the - first year of study comprising Applied Basic Sciences and General Principles of Paediatric Surgery.
- (2) Stage II (Advanced Clinical) in the second, third and fourth years of study comprising:
 - (a) Six (6) months consisting of rotation postings in Neonatology, Paediatric Intensive Care and Endoscopy or an approved elective posting. This part of the programme should be completed in the second year of the programme.
 - (b) Training in Principles and Practice of Paediatric Surgery, and Clinical Problems in Paediatric Surgery with rotation postings in the University and/or other accredited Paediatric Surgery training centres. A duration of six months in the final year should be spent in the University.
 - (c) Research project report

At the beginning of Stage II, a candidate should undertake a research project and submit a dissertation not later than six months before the Part II Examination

5. Registration

Registration for the programme of study shall commence two (2) weeks after the start of the academic session.

6. Attendance

During his/her programme of study a candidate who has been absent for more than twenty-one (21) days in any semester may be required to undertake an extended period of training to be determined by the Faculty; provided that the extended period of training does not exceed the maximum period of candidature.

7. Supervision

- (1) The supervisor for a candidate shall be appointed not later than two (2) months after the registration of the candidate.
- (2) A consultant shall be appointed for a candidate who undertakes part of his/her programme of study outside the University. The consultant shall be appointed not later than two (2) months after the candidate has commenced training in the external location.

8. Title of Research

The research project for a candidate shall be determined by the Department responsible for the candidate's programme of study not later than one month prior to the commencement of the research.

9. Submission

- (1) A candidate is required to submit his/her trainee portfolio every six (6) months for assessment by the Department responsible for the candidate's programme of study.
- (2) A candidate is required to submit his/her research report not later than six (6) months before the Final Examination.

10. Examinations for the Degree

- (1) The Examinations leading to the degree shall be as follows:
 - (a) the Part I Examination; and
 - (b) the Final Examination.
- (2) The eligibility criteria for sitting the Part I examination is as follows:
 - (i) successful completion of a minimum of one (1) year in Stage I of paediatric surgery training
 - (ii) achieving a satisfactory grade in each end of training placement assessment in Stage I
 - (iii) if an unsatisfactory grade results in repetition of a training placement, the trainee MUST have achieved a satisfactory grade for the repeated placement AND for the placement immediately preceding the date of examination.
 - (iv) Failure to obtain a "Satisfactory" grade for this placement will disqualify the trainee from the Part I examination. Failure to sit for the Part I examination for this reason may be considered a failed attempt at the examination.

- (3) The eligibility criteria for sitting Final Examination is as follows:
- (i) has passed the Part I Examination
 - (ii) successful completion of a minimum of three (3) years in Stage II of paediatric surgery training
 - (iii) achieving a satisfactory grade in each end of training placement assessments for Stage II
 - (iv) if the trainee receives an unsatisfactory grade for a training placement, the placement must be repeated
 - (v) if the trainee receives an 'unsatisfactory' grade, trainee must achieve satisfactory grade in the repeated placement
 - (vi) the trainee MUST achieve a satisfactory grade for the placement immediately preceding the date of examination. Failure to obtain a "Satisfactory" grade for this placement will disqualify the trainee from the Final Examination. Failure to sit for the Final Examination for this reason may be considered a failed attempt at the examination.
 - (vii) submission of a thesis that has been assessed to be of sufficient standard no later than six months before the Final Examination.

(4) Examination Components and Allocation of Marks

A closed marking system is adopted in the clinical and viva components where candidates are graded according to score.

Score	Description
4	Fail
5	Borderline Fail
6	Pass
7	Strong pass
8	Exceptional pass

(a) Part I Examination

The components of the Part I Examination and the marks to be allocated for each component shall be as follows:

Component	Description	Allocation of Marks (Highest)%
A. Written		
Paper 1	Single Best Answers Extended Matching Questions	100
Paper 2	Short Answer Type Questions	100
Total		200

Component	Description	Allocation of Marks/Score (Highest)
B. Viva Voce	Applied Anatomy	8
	Applied Physiology	8
	Applied Pathology	8
	Principles of Surgery	8
	Total	32

- (b) Final Examination
The components of the Final Examination and the marks to be allocated to the various components of the Final Examination shall be as follows:

Component	Description	Allocation of Marks (Highest) %
A. Written	Short Answer Type Questions	
	Paper 1	
	Principles of Paediatric Surgery, Neonatal Surgery, Oncology & Paediatric Trauma	100
	Paper 2	
	Paediatric Thoracic, Gastrointestinal, Hepatobiliary & Vascular Surgery	100
Paper 3	Paediatric Urology, Surgical Advances & Research in Paediatric Surgery	100
	Total	300

Component	Description	Allocation of Marks/Score (Highest)
B. Clinical	Long Case	8
	Short Case 1	8
	Short Case 2	8
	Short Case 3	8
	Total	32
C. Viva Voce	Operative Surgery	8
	Applied Radiology	8
	Surgical Pathology & Principles of Surgery	8
	Total	24

(5) Requirements for Passing an Examination

- (a) A candidate shall be deemed to have passed the Part I Examinations if he/she fulfils all the criteria below:
 - (i) Obtains 50% or more of the aggregate combined marks for component A
 - (ii) Obtains a minimum aggregate combined band score of 23 in Component B
 - (iii) Does not obtain a band score of 4 in any of the viva stations (Component B)
 - (iv) Does not obtain a band score of 5 in more than one viva station (Component B)
- (b) A candidate shall be deemed to have passed the Final Examinations if he/she fulfils all the criteria below:
 - (i) Obtains 50% or more of the aggregate combined marks for component A
 - (ii) Obtains a minimum aggregate combined band score of 23 in Component B
 - (iii) Obtains a minimum band score of 6 in the long case
 - (iv) Does not obtain a band score of 4 in any of the short cases (Component B)
 - (v) Does not obtain a band score of 5 in more than one of the short cases (Component B)
 - (vi) Obtains a minimum aggregate combined band score of 17 in Component C
 - (vii) Does not obtain a band score of 4 in any of the viva stations (Component C)
 - (viii) Does not obtain a band score of 5 in more than one of the viva stations (Component C)

(6) Award of Pass with Distinction for the Examination

A candidate may be awarded a Pass with Distinction in the Part I Examination if he/she-

- (a) has obtained 70% or more of the aggregate combined marks in Component A
- (b) has obtained a minimum aggregate combined band score of 30 in Component B with a minimum band score of 7 in all of the viva stations
- (c) did not fail and did not repeat any component of the Examination.

A candidate may be awarded a Pass with Distinction in the Final Examination if he/she-

- (a) has obtained 70% or more of the aggregate combined marks in Component A
- (b) has obtained a minimum aggregate combined band score of 30 in Component B with a minimum band score of 7 in all of the individual cases
- (c) has obtained a minimum aggregate combined band score of 22 in Component C with a minimum band score of 7 in all of the individual stations
- (d) did not fail and did not repeat any component of the prescribed Examination.

(7) Repeating an Examination

(a) Part I Re-examination

- (i) A candidate who has failed the Part I Examination may be permitted a re-examination on two separate occasions at six months intervals.
- (ii) The Part I re-examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Part I Examination.
- (iii) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Part I Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty and with the approval of Senate.

(b) Final Re-examination

- (i) A candidate who has failed the Final Examination may be permitted a re-examination on two separate occasions at six months intervals.
- (ii) The Final re-examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Final Examination.
- (iii) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Final Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty and with the approval of Senate.

11. Award of Degree

(1) Award of the Degree of Master of Paediatric Surgery

A candidate shall meet the following requirements for the purpose of graduation for the programme of Master of Paediatric Surgery if he/she:

- (i) passes the prescribed Examination for the Master's Degree programme by Clinical concerned;
- (ii) fulfils other requirements set by the Faculty, and if any, for the Master's Degree programme by Clinical concerned;
- (iii) fulfils the language requirements, if any, as prescribed; and
- (iv) fulfils other requirements approved by Senate from time to time.

(2) Award of the Degree of Master of Paediatric Surgery With Distinction

A candidate may be awarded the degree of Master of Paediatric Surgery with Distinction if he/she:-

- (i) has passed with Distinction in all examination components; and
- (ii) did not fail and did not repeat any component of the Examination within the prescribed period.

MASTER OF PAEDIATRIC SURGERY PROGRAMME SCHEDULE

S T A G E II	<p><u>Year 2-4</u> (36 months)</p> <p>Advanced Surgical Training</p>	<ul style="list-style-type: none"> ● Six (6) months consisting of rotation postings in Neonatology, Paediatric Intensive Care and Endoscopy or an approved elective posting. This part of the programme should be completed in the second year of the programme. ● Training in Principles and Practice of Paediatric Surgery, and Clinical Problems in Paediatric Surgery with rotation postings in the University and/or other accredited Paediatric Surgery training centres. A duration of six months in the final year should be spent in the University. 	<p>Final Examination MSM27830 (At end of Stage II)</p> <p>Submission of thesis not later than six months before the Final Examination</p> <p>Commencement of research project.</p>
S T A G E I	<p><u>Year 1</u> (12 months)</p> <p>Basic Surgical Training</p>	<p>Applied Basic Sciences and General Principles of Paediatric Surgery.</p>	<p>Part I Examination MSM 27230 (At end of Stage I)</p>

Name of Programme : Master of Pathology
(Anatomical Pathology)/ (Haematology) / (Chemical Pathology) /
(Medical Microbiology) / (Forensic Pathology)

Faculty : Faculty of Medicine

1. Classification of Programme

The Master of Pathology (Anatomical Pathology) / (Haematology) / (Chemical Pathology) / (Medical Microbiology) / (Forensic Pathology) programme is a clinical coursework programme in which the research component comprises less than thirty (30) percent of the whole programme of study. After completion of the relevant programme of study specified in this schedule, a candidate shall be eligible for the award of the Master of Pathology in a speciality of the candidate's choice, as the case may be.

2. Entry Requirements

(1) Entry qualifications

- (a) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or an equivalent medical qualification approved by the Senate; and
- (b) At least one year of post-full registration clinical experience approved by the Senate.

(2) Other requirements

- (a) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
- (b) Satisfies the Department responsible for the candidate's programme of study in an Entrance Evaluation recognised by the Faculty.

(3) English requirements

The Non-Malaysian applicant whose degree is from university or institution of higher learning that did not use English as the medium of instruction for that degree shall be required:

Type of English Qualifications		Minimum Score
International English Language Testing (IELTS)		6
Test of English as a Foreign Language (TOEFL)	IBT (Centre based)	60
	IBT Essentials	8.5
Pearson Test of Academic English (PTE)		59
Cambridge English Qualifications and Tests	B1 Preliminary, B2 First, C1 Advanced, C2 Proficiency	169
	Lingua skill Online	169
	Occupational English Test (OET) (Conventional/Online)	250

3. Duration of Study

- (1) The minimum duration of study shall be four years.
- (2) The maximum duration of study shall be seven years.

4. Structure of Programme

- (1) The programme of study comprises two stages as follows:
 - (a) Stage I encompassing:
 - (i) clinical training in the first year of study by rotational posting in each of the following four disciplines of Pathology:
 - (A) Anatomical Pathology including Autopsy
 - (B) Haematology including Transfusion Medicine;
 - (C) Chemical Pathology including Immunology; and
 - (D) Medical Microbiology (Bacteriology, Mycology, Immunology, Virology) with Parasitology.and
 - (ii) tasks as stipulated in the log book including posting reports.
 - (b) Stage II encompassing three years of study comprising:
 - (i) advanced training in one of the following disciplines of Pathology:
 - (A) Anatomical Pathology,
 - (B) Haematology;
 - (C) Chemical Pathology,
 - (D) Medical Microbiology;
 - (E) Forensic Pathology;and
 - (ii) a research project
- (2) No candidate shall be permitted to proceed to Stage II of the programme of study unless he/she has passed or has been exempted from the Part I Examination.

5. Registration

- (1) Registration for the programme of study shall commence the week prior to the start of the academic session.
- (2) A candidate may be permitted to register directly for Stage II of the programme of study if he/she has
 - (a) the Master of Medical Science in Clinical Pathology Degree of the University or an equivalent qualification approved by the Senate.
 - (b) passed the Part I Examination for the Fellowship of the Royal College of Pathologists, United Kingdom; or
 - (c) passed the Part I Examination for the Fellowship of the Royal College of Pathologists of Australasia.

6. Attendance

During his/her programme of study:

- (1) a candidate may be permitted to undertake part of his/her training in other hospitals or centres recognised by the Faculty.
- (2) a candidate who has been absent for a period exceeding forty-two (42) days in any academic year shall be required to undertake an extended period of training to be determined by the Faculty; provided always that the extended period of training shall not exceed the maximum period of candidature.

7. Supervision

- (1) The supervisor for a candidate shall be appointed not later than two months after the registration of the candidate.
- (2) A consultant shall be appointed for a candidate who undertakes part of his/her programme of study outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.

8. Title of Research

The research project for a candidate shall be determined by the Department in the Faculty responsible for the candidate's programme of study not later than one month prior to the commencement of the research.

9. Submission

- (1) A candidate is required to submit his/her log book and posting reports not later than one month before the Part I Examination.
- (2) A candidate is required to submit his/her research report not later than three months before the Final Examination.

10. Examinations for the Degree

- (1) The Examinations leading to the degree shall be as follows:
 - (a) the Part I Examination; and
 - (b) the Final Examination.
- (2) No candidate shall be permitted to sit for the Part I Examination unless he/she has satisfactorily completed all the postings prescribed for the first year of the programme of study, completed all the required tasks as set out in the log book and has submitted the log book and posting reports to the Department of Pathology not later than one month before the Part I Examination.
- (3) No candidate shall be permitted to sit for the Final Examination unless he/she has –
 - (a) passed or been exempted from the Part I Examination. A candidate may be exempted from the Part I Examination if he possesses one of the following qualifications:
 - (i) The degree of Master of Medical Science in Clinical Pathology of the University or an equivalent qualification approved by Senate;

- (ii) The Part I Examination for the Fellowship of the Royal College of Pathologists, United Kingdom; or
- (iii) The Part I Examination for the Fellowship of the Royal College of Pathologists of Australasia.
- (b) submitted his/her Research Report not later than three months before the Final Examination.
- (4) The Part I Examination shall be held at the end of the Stage I of the programme of study. The Final Examination shall be held at the end of the final year of the Stage II programme of study.
- (5) Examination Components and Allocation of Marks
 - (a) Part I Examination

The components of the Part I Examination and the marks to be allocated to each component shall be as follows:

- *MMH Master of Pathology (Haematology)
- *MMK Master of Pathology (Medical Microbiology)
- *MMJ Master of Pathology (Anatomical Pathology)
- *MMG Master of Pathology (Forensic Pathology)
- *MMI Master of Pathology (Chemical Pathology)

Component	Description	Allocation of Marks (Maximum)
A. Written		
*MKGA6104 Paper 1	Multiple Choice & Essay Questions	150
*MKGA6105 Paper 2	Multiple Choice & Essay Questions	<u>150</u>
	Total	300
B. *MKGA6111 Practical		
*MKGA6112 Paper 1	Objective Structured Examination	150
*MKGA6113 Paper 2	Objective Structured Examination	150
	Total	<u>300</u>
	Grand Total	<u>600</u>

- (b) Final Examination

The components of the Final Examination and the marks to be allocated to each component shall be as follows:

Component	Description	Allocation of Marks (Maximum)
A. Written		
*MKGA6238 Paper 1	Essay or Short Answer Questions	225
*MKGA6237 Paper 2	Essay or Short Answer Questions	<u>225</u>
	Total	<u>450</u>
B. *MKGA6243 Practical	Objective Structured Questions, Speciality Practicals and Others	450
C. *MKGA6250 Viva Voce		<u>100</u>
	Grand Total	<u>1000</u>

(6) Requirements for Passing an Examination

A candidate shall be deemed to have passed the Examinations prescribed below if he/she has obtained:

(a) Part I Examination

- (i) 50% or more of the aggregate combined marks of the written and practical components of the Examination;
- (ii) at least 50% of the marks for the written component and not less than 40% of the marks in the written component for each discipline of Pathology; and
- (iii) at least 50% of the marks for the practical component and not less than 40% of the marks in the practical component for each discipline of Pathology.

(b) Final Examination

50% or more of the aggregate combined marks for all the components of the Examination and not less than 50% of the marks for the written and practical components of the Examination.

(7) Repeating an Examination

(a) Part I Re-Examination

- (i) A candidate who has failed the Part I Examination may be permitted only one re-examination after a period of one year.
- (ii) The Part I Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Part I Examination.
- (iii) A candidate who fails the re-examination shall be deemed to have failed the Part I Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.

(b) Final Re-Examination

- (i) A candidate who has failed the Final Examination may be permitted a re-examination after a period of one year.
- (ii) The Final Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Final Examination.
- (iii) A candidate who fails the Final Re-Examination on the second occasion shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.
- (iv) Notwithstanding regulations 10(7)(b) above, a candidate who has failed because of either the written or practical component of the Final

Examination may be permitted a re-examination on four separate occasions at six monthly intervals. Under the circumstances, the re-examination shall comprise the written or practical component that the candidate has failed in the main Examination or the first re-examination and the viva voce. The examination shall be in the discipline of Pathology initially chosen by the candidate for the main Examination.

- (c) A candidate who has passed the re-examination for the Examinations above shall be deemed to have passed the prescribed Examinations.

11. Award of Degree

No candidate shall be recommended for the award of the Degree of Master of Pathology (Anatomical Pathology/ Haematology/ Chemical Pathology/ Medical Microbiology/ Forensic Pathology) unless he/she has successfully completed all parts of the course, completed the minimum duration of study and has passed the prescribed Examinations.

(1) Award of Pass with Distinction for the Examination

A candidate may be awarded a pass with Distinction in the Part I Examination and the Final Examination if he/she –

- (a) has obtained 75% or more of the aggregate marks in each of the prescribed Examination;
- (b) has not failed in any component of the prescribed Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

(2) Award of the Degree with Distinction

A candidate may be awarded the degree of Master of Pathology (Anatomical Pathology/ Haematology/ Chemical Pathology/ Medical Microbiology/ Forensic Pathology) with Distinction if he/she –

- (a) has passed with Distinction in the Final Examination;
- (b) has not failed in any component of the prescribed Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

**Master of Pathology (Anatomical Pathology) / (Haematology) /
(Chemical Pathology) / (Medical Microbiology) / (Forensic Pathology)
Programme Schedule**

S T A G E II	Year 4	<ul style="list-style-type: none">▪ Specialisation in any one Pathology discipline, including Anatomic Pathology, Haematology, Chemical Pathology, Medical Microbiology, Forensic Pathology, Immunology, and▪ Research Project in the chosen discipline		Final Examination
	Year 3			
	Year 2			
S T A G E I	Year 1	Intensive Course (3 weeks)		Part I Examination
		Posting for 10 weeks in each of these disciplines	<ul style="list-style-type: none">• Anatomic Pathology• Haematology• Chemical Pathology• Medical Microbiology/Parasitology	
				Registration (Entrance Evaluation)

Name of Programme : Master of Psychological Medicine
Faculty : Faculty of Medicine

1. Classification of Programme

The Master of Psychological Medicine programme is a clinical coursework programme in which the research component comprises less than thirty (30) percent of the whole programme of study.

2. Entry Requirements

(1) Entry qualifications

- (a) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or an equivalent medical qualification approved by the Senate; and
- (b) At least one year of post-full registration clinical experience approved by the Senate.

(2) Other requirements

- (a) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
- (b) Pass entrance evaluation and interview

(3) English requirements

The Non-Malaysian applicant whose degree is from university or institution of higher learning that did not use English as the medium of instruction for that degree shall be required:

Type of English Qualifications		Minimum Score
International English Language Testing (IELTS)		6
Test of English as a Foreign Language (TOEFL)	IBT (Centre based)	60
	IBT Essentials	8.5
Pearson Test of Academic English (PTE)		59
Cambridge English Qualifications and Tests	B1 Preliminary, B2 First, C1 Advanced, C2 Proficiency	169
	Lingua skill Online	169
	Occupational English Test (OET) (Conventional/Online)	250

3. Duration of Study

- (1) The minimum duration of study shall be four years.
- (2) The maximum duration of study shall be seven years.

4. Structure of Programme

- (1) The programme of study comprises three (3) stages as follows:
 - (a) Stage I, in the first year of study comprising:
 - (i) clinical training in basic attitudes;
 - (ii) training in clinical skills and management in psychiatry;
 - (iii) training in basic sciences relevant to psychiatry and training in psychiatric management and
 - (iv) Work based assessments.
 - (b) Stage II, in the second and third year of study comprising:
 - (i) training in clinical psychiatry and rotational postings in psychiatric subspecialties;
 - (ii) Preparation of Psychotherapy protocols; and
 - (iii) work based assessments.
 - (c) Stage III, in the fourth year of study comprising advanced training in psychiatry, completion of research project and work based assessments.
- (2) No candidate shall be permitted to proceed to Stage II of the programme study unless he/she has passed the Part I Examination.
- (3) No candidate shall be permitted to proceed to Stage III of the programme study unless he/she has passed the Part II Examination.

5. Registration

Registration for the programme of study shall commence for two (2) weeks after the start of the academic session.

6. Attendance

During his/her programme of study –

- (1) a candidate may be permitted to undertake part of his/her training in other hospitals or centres recognised by the Faculty;
- (1) a candidate who has been absent for a period exceeding forty-two days in any academic year shall be required to undertake an extended period of training to be determined by the Faculty; provided always that the extended period of training shall not exceed the maximum period of candidature.

7. Supervision

- (1) The supervisor for a candidate shall be appointed not later than two (2) months after the initial registration of the candidate.
- (2) A consultant shall be appointed for a candidate who undertakes part of his/her programme of study outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.

8. Title of Research

The research project for a candidate shall be determined by the Department responsible for the candidate's programme of study. The research proposal shall be submitted to the ethics committee not later than four months before the Part II Examination.

9. Submission

- (1) A candidate is required to submit a satisfactory portfolio document that has been verified by the supervisor for Stage I of the programme of study not later than three (3) months before the Part I Examination.
- (2) A candidate is required to submit the psychotherapy protocols and a satisfactory portfolio document that has been verified by the supervisor for Stage II of the programme study not later than three (3) months before the Part II Examination.
- (3) A candidate is required to submit a research report and a satisfactory portfolio document that has been verified by the supervisor not later than three (3) months before the Final Examination.

10. Examinations for the Degree

- (1) The Examinations leading to the degree shall be as follows:
 - (a) the Part I Examination
 - (b) the Part II Examination
 - (c) the Final Examination
- (2) No candidate shall be permitted to sit for the Part I Examination unless he/she has completed and submitted a satisfactory portfolio document that has been verified by the supervisor for Stage I of the programme not later than three (2) months before the Part I Examination..
- (3) No candidate shall be permitted to sit for the Part II Examination unless he/she has:
 - (a) passed the Part I Examination; and
 - (b) satisfactorily completed and submitted a satisfactory psychotherapy protocols and training portfolio document that has been verified by the supervisor for Stage II not later than three (3) months before the Part II Examination.
- (4) No candidate shall be permitted to sit for the Final Examination unless he/she has:
 - (a) passed the Part II Examination; and
 - (b) Satisfactorily completed and submitted research report and a satisfactory portfolio document that has been verified by the supervisor not later than three (3) months before the Final Examination.
- (5) The Part I examination shall be held at the end of the first year of the programme study. The Part II examination shall be held at the end of the third year of the programme study and the Final examination shall be held at the end of the fourth year of the programme study.
- (6) The written component For Part I & II examination will be held before the clinical examination. Those who fail the written component will not be allowed to take the clinical examination. They shall be considered as have failed the examination.

(7) Examination Components and Allocation of Marks:

(a) Part I Examination

Component	Description	Allocation of Marks (Maximum)
A. Written		
	Paper 1	Multiple Choice Questions 40
	Paper 2	Multiple Choice Questions 60
	Paper 3	Short Essay Questions 100
B. Clinical		
	Short Case	Psychiatry 100
Grand Total		<u>300</u>

(b) Part II Examination

The components of the Part II Examination and the marks to be allocated to each component shall be as follows:

Component	Description	Allocation of Marks (Maximum)
A. Written		
	Paper 1	Essay Questions and Critical Review Paper 100
	Paper 2	Short Notes Questions 100
		Total 200
B. Clinical		
	Long Case	Psychiatry 100
	OSCE Psychiatry Subspecialities	100
		Total 200
Grand Total		<u>400</u>

(c) Final Examination

The components of the Final Examination and the marks to be allocated to each component shall be as follows:

(i)	Research report	70
	Dissertation Viva	30
		Total 100

OR If the candidate's research work has been accepted for publication in an indexed scientific journal (at least SCOPUS) he/she shall be exempted from submission of research report and dissertation viva 100.

(ii)	Consultation Viva	100
Grand Total		<u>200</u>

(8) Requirements for Passing an Examination

A candidate shall be deemed to have passed the Examinations prescribed below if he/she has obtained:

- (a) Part I Examination
 - (i) 50% or more of the written component
 - (ii) 50% or more of the average marks from the clinical component; and
 - (iii) not less than 45% of the marks in any of the clinical case of the clinical component.
 - (b) Part II Examination
 - (i) 50% or more of the written component;
 - (ii) 50% or more of the clinical long case Psychiatry; and
 - (iii) 50% or more of the average marks from the OSCE.
 - (c) Final Examination

50% or more of the marks in all component of the examination.
- (9) Pass the Examination with Distinction
- A candidate may be obtained a Pass with Distinction in the Part I Examination, the Part II Examination and the Final Examination if he –
- (a) has obtained 75% or more of the aggregate marks in each of the prescribed Examination;
 - (b) has not failed in any component of the prescribed Examination; and
 - (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.
- (10) Repeating an Examination
- (a) Part I Re-Examination
 - (i) A candidate who has failed the Part I Examination may be permitted a re-examination on two separate occasions at six monthly intervals.
 - (ii) The Part I Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Part I Examination. However if a candidate had achieved at least 50% (100/200) of the total marks of the “Written” component during the prior examination, he/she shall be exempted from sitting for the written component during the Re-examination.
 - (iii) A candidate who has passed written component but fail clinical component may be permitted a re-examination of clinical component only.
 - (iv) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Part I Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.
 - (b) Part II Re-Examination
 - (i) A candidate who has failed the Part II Examination may be permitted a re-examination on two separate occasions at six monthly intervals.
 - (ii) The Part II Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Part II Examination.

- (iii) A candidate who has passed written components but fail clinical component may be permitted a re-examination of clinical component only.
- (c) Final Re-Examination
 - (i) A candidate who has failed the Final Examination may be permitted a re-examination on two separate occasions at six monthly intervals.
 - (ii) The Final Re-Examination shall consist of only the failed component(s) and shall be assessed and graded in the same manner as prescribed for the Final Examination.
 - (iii) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Final Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.
- (e) A candidate who has passed the re-examination for the Examinations above shall be deemed to have passed the prescribed Examinations.
- (11) Supervisory Report

In the event that a candidate get an unsatisfactory report, the Department concerned may set up a special committee to deliberate and recommend the candidate to be terminated from the course, to repeat the year, to defer for 6 months or to be permitted for sitting in the examination.

11. Award of Degree

(1) Award of the Degree of Master of Psychological Medicine

A candidate shall meet the following requirements for the purpose of graduation for the programme of Master of Psychological Medicine:

- (a) passes the prescribed Examination for the Master's Degree programme by Clinical concerned;
- (b) fulfils other requirements set by the Faculty, if any, for the Master's Degree programme by Clinical concerned;
- (c) fulfils the language requirements, if any, as prescribed; and
- (d) fulfils other requirements approved by Senate from time to time.

(2) Award of the Degree of Master of Psychological Medicine (With Distinction)

A candidate may be awarded the Degree of Master of Psychological Medicine (With Distinction) if he/she –

- (a) has passed with Distinction in the Part I Examination, Part II Examination and Final Examination; and
- (b) has not failed in any component of the prescribed Examination; or any component of the programme within the stipulated time unless for medical or humane reasons acceptable to the Faculty

**MASTER OF PSYCHOLOGICAL MEDICINE
PROGRAMME SCHEDULE**

S T A G E III	Year 4	<ul style="list-style-type: none"> Advanced training in psychiatry, completion of research project and work based assessments. 	Final examination
S T A G E II	Year 3 Year 2	<ul style="list-style-type: none"> Training in clinical psychiatry and rotational postings in psychiatric sub-specialities Preparation of case protocols for psychotherapy and work based assessments. 	Part II Examination
S T A G E I	Year 1	<ul style="list-style-type: none"> Clinical training in basic attitudes Training in clinical skills and management in psychiatry Training in basic sciences relevant to psychiatry and training in psychiatric management Work Based Assessments 	Part I Examination Registration (Entrance Evaluation)

Name of Programme : Master of Radiology
Faculty : Faculty of Medicine

1. Classification of Programme

The Master of Radiology programme is a clinical coursework programme in which the research component comprises less than thirty (30) percent of the whole programme of study.

2. Entry Requirements

(1) Entry qualifications

- (a) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or an equivalent medical qualification approved by the Senate; and
- (b) At least one year of post-full registration clinical experience approved by the Senate.

(2) Other requirements

- (a) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
- (b) Pass the entrance evaluation and interview.

(3) English requirement

The Non-Malaysian applicant whose degree is from university or institution of higher learning that did not use English as the medium of instruction for that degree shall be required:

Type of English Qualifications		Minimum Score
International English Language Testing (IELTS)		6
<i>Test of English as a Foreign Language (TOEFL)</i>	IBT (<i>Centre based</i>)	60
	IBT <i>Essentials</i>	8.5
<i>Pearson Test of Academic English (PTE)</i>		59
<i>Cambridge English Qualifications and Tests</i>	<i>B1 Preliminary, B2 First, C1 Advanced, C2 Proficiency</i>	169
	<i>Lingua skill Online</i>	169
	<i>Occupational English Test (OET) (Conventional/Online)</i>	250

3. Duration of Study

- (1) The minimum duration of study shall be four years.
- (2) The maximum duration of study shall be seven years.

4. Structure of Programme

The programme of study comprises three (3) stages as follows:

- (1) Stage I in the first year of study comprising:
 - (a) basic training in Radiological Medical Physics, Radiological Anatomy and Radiography, Radiological Technique, Contrast Media and Drugs, Basic Trauma Radiology and any other disciplines of Radiology that may be determined by the Department from time to time;
 - (b) training in cognate subjects of radiology that may be determined by the department from time to time; and
 - (c) Maintenance of a training portfolio by the candidate to document radiological procedures performed by him/her.
- (2) Stage II in the second and third year of study comprising:
 - (a) training in all aspects of diagnostic radiology, imaging techniques and interventional radiology;
 - (b) training in cognate subjects as may be determined by the Department from time to time;
 - (c) Maintenance of a training portfolio by the candidate to document radiological procedures performed by him/her; and
 - (d) the commencement of a research project.
- (3) Stage III in the fourth year of study comprising:
 - (a) advanced training in all aspects of diagnostic radiology, imaging techniques and interventional radiology;
 - (a) advanced training in cognate subjects as may be determined by the Department from time to time;
 - (b) Maintenance of a training portfolio by the candidate to document radiological procedures performed by him/her; and
 - (d) a research project.

5. Registration

Registration for the programme of study shall commence for two (2) weeks after the start of the academic session.

6. Attendance

During his/her programme of study -

- (1) A candidate may be permitted to undertake part or all of his/her training in other hospitals or centres recognised by the Faculty;
- (2) A candidate who has been absent for a period exceeding forty-two (42) days in any academic year shall be required to undertake an extended period of training to be determined by the Faculty; provided always that the extended period of training shall not exceed the maximum period of candidature.

7. Supervision

- (1) The supervisor for a candidate shall be appointed not later than two (2) months after the initial registration of the candidate.
- (2) A consultant shall be appointed for a candidate who undertakes part or all of his/her programme of study outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.

8. Title of Research

The research project for a candidate shall be determined by the Department responsible for the candidate's programme of study not later than one month prior to the commencement of the research.

9. Submission

- (1) A candidate is required to submit the training portfolio that is satisfactory and approved by their supervisor for the respective period of study one (1) month before the Part I Examination.
- (2) A candidate is required to submit the training portfolio that is satisfactory and approved by their supervisor for the respective period of study one (1) months before the Part II Examination.
- (3) A candidate is required to submit the training portfolio and research report that is satisfactory and approved by their supervisor for the respective period of study three (3) months before the Final Examination.

10. Examinations for the Degree

- (1) The Examinations leading to the degree shall be as follows:
 - (a) the Part I Examination;
 - (b) the Part II Examination; and
 - (c) the Final Examination
- (2) No candidate shall be permitted to sit for the Part I Examination unless he/she has submitted a training portfolio that is satisfactory and approved by their supervisor for the respective period of study one (1) month before the Part I examination.

- (3) No candidate shall be permitted to sit for the Part II Examination unless he/she has -
- (a) submitted a training portfolio that is satisfactory and approved by their supervisor for the respective period of study one (1) month before the Part II Examination; and
 - (b) passed the Part I Examination.
- (4) No candidate shall be permitted to sit for the Final Examination, unless he/she has -
- (a) passed the Part II Examination; and
 - (b) submitted a training portfolio and the research report that is satisfactory and approved by their supervisor three (3) months before the Final Examination.
- (5) The Part I Examination shall be held at the end of Stage I of the programme of study. The Part II Examination shall be held at the end of stage II of the programme of study. The Final Examination shall be held at the end of stage III of the programme of study.
- (6) Examination Components and Allocation of Marks

(a) Part I Examination

The components of the Part I Examination and the marks to be allocated to each component shall be as follows:

Components	Description	Allocation of Marks (Maximum)
A. MCQ	Multiple Choice Questions Paper	100
B. Vica Voce		100
C. OSCE	Objective Structured Clinical Examination	100
D. OSPE	Objective Structured Practical Examination	<u>100</u>
	Total	<u>400</u>

(b) Part II Examination

The components of the Part II Examination and the marks to be allocated to each component shall be as follows:

Components	Description	Allocation of Marks (Maximum)
A. Written	Paper 1 SBA Paper 2 SBA	100 100
B. Film Reporting		100
C. Viva Voce		<u>100</u>
	Total	<u>400</u>

(c) Final Examination

The components of the Final Examination and the marks to be allocated to each component shall be as follows:

Components	Description	Allocation of Marks (Maximum)
A.	Research report	100
B.	Viva Voce	100
C.	Rapid Film reporting	100
Total		<u>300</u>

(7) Requirements for Passing an Examination

A candidate shall be deemed to have passed the Examinations prescribed below if he/she has obtained:

(a) Part I Examination

50 % or more of the marks for each component of the Examination.

A candidate who does not fulfill the above requirement for a component shall be deemed to have failed the component concerned but shall be credited with the component or components he/she has passed and be required to repeat only the component that he has failed.

(b) Part II Examination

The passing mark for component A is according to the "Standard Setting" agreed by the Radiology Conjoint Board Committee.

50% or more of the marks for components B, C of the Examination

A candidate who does not fulfill the above requirement for a component shall be deemed to have failed the component concerned but shall be credited with the component or components he has passed and be required to repeat only the component that he/she has failed.

(c) Final Examination

50 % or more of the marks for each component of the Examination.

A candidate who does not fulfill the above requirement for a component shall be deemed to have failed the component concerned but shall be credited with the component or components he/she has passed and be required to repeat only the component that he/she has failed.

(8) Pass the Examination with Distinction

A candidate may be obtained a Pass with Distinction Distinction in the Part I Examination, the Part II Examination and the Final Examination if he/she –

- (a) has obtained 75% or more of the aggregate marks in each of the prescribed Examinations;
- (b) has not failed in any module of the Part I Examination, or component of the Part II Examination or the Final Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

(9) Repeating an Examination

(a) Part I Re-Examination

- (i) A candidate who has failed the Part I Examination may be permitted a re-examination on two separate occasions at six monthly intervals.
- (ii) The Part I Re-Examination shall consist of the same component and shall be assessed and graded in the same manner as prescribed for the Part I Examination.
- (iii) A candidate who has passed one or more of the component of the Part I Examination shall be deemed to have passed those component and shall not be required to repeat those component.
- (iv) A candidate shall be required to repeat those component that he/she has failed in the Part I Examination.
- (v) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Part I Examination and shall not be permitted to repeat the programme of study except in special circumstances and on the recommendation of the Faculty of Medicine and with the approval of Senate.

(b) Part II Re-Examination

- (i) A candidate who has failed the Part II Examination may be permitted a re-examination on two separate occasions at six monthly intervals.
- (ii) The Part II Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Part II Examination.
- (iii) A candidate who has passed one or more of the components of the Part II Examination shall be deemed to have passed those components and shall not be required to repeat those components.
- (iv) A candidate shall be required to repeat those components that he/she has failed in the Part II Examination.
- (v) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Part II Examination and shall not be permitted to repeat the programme of study except in special circumstances and on the recommendation of the Faculty of Medicine and with the approval of Senate.

(c) Final Re-Examination

- (i) A candidate who has failed the Final Examination may be permitted a re-examination on two separate occasions at six monthly intervals.
- (ii) The Final Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Final Examination.

- (iii) A candidate who has passed one or more of the components of the Final Examination shall be deemed to have passed those components and shall not be required to repeat those components.
- (iv) A candidate shall be required to repeat those components that he/she has failed in the Final Examination.
- (v) A candidate whose research report is deemed unsatisfactory by the Committee of Examiners may be referred for further work over a period of time to be determined by the Committee of Examiners except that such periods of time as determined shall not exceed six months on any one occasion. At the end of the prescribed period the candidate shall be required to submit the research report for re-examination. A candidate who fails to submit his research report by the end of the prescribed period for re-examination shall be deemed to have failed the research report.
- (vi) A candidate shall be permitted to resubmit the research report for re-examination either singly or jointly on not more than two occasions.
- (vii) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Final Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.

11. Award of Degree

(1) Award of the Degree of Master of Radiology

A candidate shall meet the following requirements for the purpose of graduation for the programme of Master of Radiology:

- (a) passes the prescribed Examination for the Master's Degree programme by Clinical concerned;
- (b) fulfils other requirements set by the Faculty, if any, for the Master's Degree programme by Clinical concerned;
- (c) fulfils the language requirements, if any, as prescribed; and
- (d) fulfils other requirements approved by Senate from time to time.

(2) Award of the Degree of Master of Radiology (With Distinction)

A candidate may be awarded the degree of Master of Radiology (With Distinction) if he/she -

- (a) has passed with Distinction in the Part I Examination, Part II Examination and the Final Examination; and
- (b) has not failed and has not repeated any component of the Examination or any part of the programme of study within the prescribed period except on medical or compassionate grounds accepted by the Faculty.

**MASTER OF RADIOLOGY
PROGRAMME SCHEDULE**

S T A G E III	Year 4	<ul style="list-style-type: none"> Advanced training in all aspects of Diagnostic Radiology, Imaging Technique and Interventional Radiology 	Final Examination
S T A G E II	Year 3 Year 2	<ul style="list-style-type: none"> Training in all aspect of Diagnostic Radiology, Imaging Technique and Interventional Radiology 	Part II Examination
S T A G E I	Year 1	<ul style="list-style-type: none"> Basic training in Radiological Medical Physics, Radiological Anatomy and Radiography, Radiological Technique, Contrast Media and Drugs, Basic Trauma Radiology and any other disciplines of Radiology. 	Part I Examination Registration (Entrance Evaluation)

Name of Programme : Master of Rehabilitation Medicine
Faculty : Faculty of Medicine

1. Classification of Programme

The Master of Rehabilitation Medicine programme is a clinical coursework programme in which the research component comprises less than thirty (30) percent of the whole programme of study.

2. Entry Requirements

(1) Entry qualifications

- (a) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or an equivalent medical qualification approved by the Senate; and
- (b) At least two (2)-years of clinical experience in in-patient care, post-full registration with Malaysian Medical Council (MMC), approved by the Senate of which, at least one(1) year is spent in Rehabilitation Medicine clinical service.

(2) Other requirements

- (a) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
- (b) Pass the entrance evaluation and interview

(3) English requirements

The Non-Malaysian applicant whose degree is from university or institution of higher learning that did not use English as the medium of instruction for that degree shall be required:

Type of English Qualifications		Minimum Score
International English Language Testing (IELTS)		6
<i>Test of English as a Foreign Language (TOEFL)</i>	IBT (<i>Centre based</i>)	60
	IBT <i>Essentials</i>	8.5
<i>Pearson Test of Academic English (PTE)</i>		59
<i>Cambridge English Qualifications and Tests</i>	<i>B1 Preliminary, B2 First, C1 Advanced, C2 Proficiency</i>	169
	<i>Lingua skill Online</i>	169
	<i>Occupational English Test (OET) (Conventional/Online)</i>	250

3. Duration of Study

- (1) The minimum duration of study shall be four years.
- (2) The maximum duration of study shall be seven years.

4. Structure of Programme

The programme of study comprises two (2) stages as follows:

- (1) Stage I in the first year of study covering:
 - (a) Basic and Applied Sciences of Rehabilitation Medicine;
 - (b) Principles, Concepts and Practice of Rehabilitation Medicine;
 - (c) Rotational postings in disciplines related to Rehabilitation Medicine;
 - (d) Training portfolio keeping by trainee to record their clinical work and assignments ;
 - (e) Continuous assessments as prescribed by the Department
- (2) Stage II second until fourth of study covering:
 - (a) Rotational postings in specialised Rehabilitation Medicine disciplines and disciplines related to Rehabilitation Medicine;
 - (b) research report;
 - (c) Training portfolio keeping by trainee to record their clinical work and assignments
 - (d) continuous assessments as prescribed by the Department.
- (3) No candidate shall be permitted to proceed to Stage II of the programme of study unless he/she has passed the Part I Examination.

5. Registration

Registration for the programme of study shall commence for two (2) weeks after the start of the academic session.

6. Attendance

During his/her programme of study -

- (1) A candidate may be permitted to undertake part of his/her training in other hospitals or centres recognised by the Faculty;
- (2) A candidate who has been absent for a period exceeding forty-two (42) days in any academic year shall be required to undertake an extended period of training to be determined by the Faculty; provided always that the extended period of training shall not exceed the maximum period of candidature.

7. Supervision

- (1) The supervisor for a candidate shall be appointed not later than two (2) months after the initial registration of the candidate
- (2) A consultant shall be appointed a candidate who undertakes part of his/her programme of study outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.

8. Title of Research

The research project for a candidate shall be determined by the Department responsible for the candidate's programme of study after entering Stage II, which begins in the second year.

9. Submission

- (1) A candidate is required to submit his/her training portfolio which must be deemed satisfactory and approved by their supervisor for the respective period of study not later than three (3) months before the Part I Examination
- (2) A candidate is required to submit his/her training portfolio which must be deemed satisfactory and approved by their supervisor for the respective period of study not later than three (3) months before the Final Examination
- (3) A candidate is required to submit his research report not later than three (3) months before the Final Examination.

10. Examinations for the Degree

- (1) The Examinations leading to the degree shall be as follows:
 - (a) the Part I Examination;
 - (b) the Final Examination.
- (2) No candidate shall be permitted to sit for the Part I Examination unless he/she has –
 - (a) satisfactorily completed the continuous assessments prescribed by the Department; and
 - (b) submitted his/her training portfolio deemed satisfactory by the Department not later than three (3) months before the Part I Examination.
- (3) No candidate shall be permitted to sit for the Final Examination unless he/she has –
 - (a) passed or been exempted from the Part I Examination. A candidate may be exempted from the Part I Examination if he has passed the Part I Examination for any one of the following degrees of the University or has obtained an equivalent qualification recognised by the Senate:

Master of Internal Medicine
Master of Family Medicine
Master of Orthopaedic Surgery
Master of Paediatrics
Master of Surgery
 - (b) Satisfactorily completed the components of the continuous assessments as specified by the Department;
 - (c) Submitted his/her training portfolio deemed satisfactory by the Department not later than three (3) months before the Final Examination; and
 - (d) Submitted a research report on an aspect of Rehabilitation Medicine not later than three months before the Final Examination. A candidate must obtain a pass grade in the research report before he/she is permitted to sit for the Final Examination.

(4) Examination Components and Allocation of Marks

(a) Part I Examination

The components of the Part I Examination and the marks to be allocated to each component shall be as follows:

Component	Description	Allocation of Marks (Maximum)
A. Written	Single Best Answer (SBA)	100
	Total marks	100
B. Clinical	Objective Structured Clinical Examination (OSCE)	200
	Long Case examination	300
	Total marks	500
	Grand total (Component A + B)	<u>600</u>

(b) Final Examination

The components of the Final Examination and the marks to be allocated to each component shall be as follows:

Component	Description	Allocation of Marks (Maximum)
A. Written	Single Best Answer (SBA)	100
	Total marks	100
B. Clinical	Objective Structured Clinical Examination (OSCE)	200
	Long Case examination	300
	Total marks	500
	Grand total (Component A + B)	<u>600</u>

(5) Requirements for Passing an Examination

A candidate shall be deemed to have passed the Examinations prescribed below if he/she has obtained:

(a) Part I Examination

50% or more of the marks for each component.

The Written Examination (Component A: Written) will be held before the Clinical Examination (Component B: Clinical). Only candidates that passes the Written Examination will be allowed to sit the Clinical Examination.

Written Examination consist of component A which are:

- (i) Component A (Written) : Single Best Answer (SBA)
 - (A) 50% or more of the total marks
 - (B) Compulsory to pass
- (ii) Component B (Clinical):
 - (A) 50% or more of the OSCE total marks
 - (B) 50% or more of the Long Case total marks
 - (C) Compulsory to pass both OSCE and Long Case

A candidate who fails the clinical exam will not have to re-sit the written examination before attempting the clinical examination again.

(b) Final Examination

50% or more of the marks for each component of the Final Examination.

The Written examination (Component A:Written) will be held before the Clinical Examination (Component B: Clinical). Only candidates that passes the Written Examination will be allowed to sit for the Clinical Examination.

Written Examination consist of Component A which are:

- (i) Component A (Written): Single Best Answer (SBA)
 - (A) 50% or more of the total marks
 - (B) Compulsory to pass
- (ii) Component B (Clinical):
 - (A) 50% or more of the OSCE total marks
 - (B) 50% or more of the Long Case total marks
 - (C) Compulsory to pass both OSCE and Long Case

A candidate who fails the clinical exam will not have to re-sit the Written examination before attempting the clinical examination again.

(6) Pass the Examination with Distinction

A candidate may be obtained a Pass with Distinction in the Part I Examination, the Part II Examination and the Final Examination if he/she –

- (a) has obtained 75% or more of the aggregate marks in each of the prescribed Examinations;
- (b) has not failed in any module of the Part I Examination, or component of the Part II Examination or the Final Examination; and
- (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

(7) Repeating an Examination

(a) Part I Re-Examination

- (i) A candidate who has failed the Part I Examination may be permitted a re-examination on two separate occasions at six months intervals.

- (ii) The Part I Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Part I Examination.
- (iii) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Part I Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.
- (b) Final Re-Examination
 - (i) A candidate who has failed the Final Examination may be permitted a re-examination on two separate occasions at six months intervals.
 - (ii) The Final Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Final Examination.
 - (iii) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Final Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.
- (c) A candidate who has passed the re-examination for the Examinations shall be deemed to have passed the prescribed Examinations.

11. Award of Degree

(1) Award of the Degree of Rehabilitation Medicine

A candidate shall meet the following requirements for the purpose of graduation for the programme of Rehabilitation Medicine:

- (a) passes the prescribed Examination for the Master's Degree programme by Clinical concerned;
- (b) fulfils other requirements set by the Faculty, if any, for the Master's Degree programme by Clinical concerned;
- (c) fulfils the language requirements, if any, as prescribed; and
- (d) fulfils other requirements approved by Senate from time to time.

(2) Award of the Degree of Master of Rehabilitation Medicine (With Distinction)

A candidate may be awarded the degree of Master of Rehabilitation Medicine (With Distinction) if he/she -

- (a) has passed with Distinction in the Final Examination; and
- (b) has not failed and has not repeated any component of the Examination or any part of the programme of study within the prescribed period except on medical or compassionate grounds accepted by the Faculty.

MASTER OF REHABILITATION MEDICINE PROGRAMME SCHEDULE

S T A G E I	Tahun 1 (12 months)	<ul style="list-style-type: none"> (a) Basic and Applied Sciences in Rehabilitation Medicine (b) Principles, concept and clinical practice in Rehabilitation medicine. (c) Clinical rotation in the subspecialty clinical discipline in rehabilitation medicine and other associated clinical disciplines. (d) Training portfolio keeping to document clinical work and assessments. (e) Continuous assessments prescribed by the department. 	Registration (Entrance Evaluation)
			Part I Examination
S T A G E II	Year 4 Year 3 Year 2 (36 months)	<ul style="list-style-type: none"> (a) Rotational postings in specialised Rehabilitation Medicine disciplines and disciplines related to Rehabilitation Medicine; (b) Research report (c) Training portfolio keeping by trainee to record their clinical work and assignments (d) continuous assessments as prescribed by the Department. 	
			Final Examination

Name of Programme : Master of Sports Medicine
Faculty : Faculty of Medicine

1. Classification of Programme

The Master of Sports Medicine programme is a clinical coursework programme in which the research component comprises less than thirty (30) percent of the whole programme of study.

2. Entry Requirements

(1) Entry qualifications

- (a) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or an equivalent medical qualification approved by the Senate; and
- (b) At least one year of post-full registration clinical experience approved by the Senate.

(2) Other requirements

- (a) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
- (b) Pass the prescribed entrance assessment and interview.

(3) English requirements

The Non-Malaysian applicant whose degree is from university or institution of higher learning that did not use English as the medium of instruction for that degree shall be required:

Type of English Qualifications		Minimum Score
International English Language Testing (IELTS)		6
<i>Test of English as a Foreign Language (TOEFL)</i>	IBT (Centre based)	60
	IBT Essentials	8.5
<i>Pearson Test of Academic English (PTE)</i>		59
<i>Cambridge English Qualifications and Tests</i>	<i>B1 Preliminary, B2 First, C1 Advanced, C2 Proficiency</i>	169
	<i>Lingua skill Online</i>	169
	<i>Occupational English Test (OET) (Conventional/Online)</i>	250

3. Duration of Study

- (1) The minimum duration of study shall be four years.
- (2) The maximum duration of study shall be seven years.

4. Structure of Programme

The programme of study comprises two stages as follows:

- (a) Stage I in the first year of study comprising:
 - (i) Introduction and basic sciences in the following Sports Medicine modules
 - Module A – Sports Sciences
 - Module B – Clinical Sports Medicine
 - Module C – Principles of Exercise Prescription
 - Module D – Sports Rehabilitation
 - Module E – Sports Coverage and Emergencies
 - Module F – Specialty Training
 - (ii) Assignments;
 - (iii) A training portfolio must be used to record assignments, and activities of teaching and learning attended. It must be maintained and updated by the candidate.
 - (iv) Continuous assessments as prescribed by the Department.
- (b) Stage II in the second, third and fourth years of study comprising:
 - (i) Advance training in the following Sports Medicine modules
 - Module A – Sports Sciences
 - Module B – Clinical Sports Medicine
 - Module C – Principles of Exercise Prescription
 - Module D – Sports Rehabilitation
 - Module E – Sports Coverage and Emergencies
 - Module F – Specialty Training
 - Module G – Clinical Research
 - (ii) Assignments;
 - (iii) A training portfolio must be used to record assignments, and activities of teaching and learning attended. It must be maintained and updated by the candidate
 - (iv) Research report; and
 - (v) Continuous assessments as prescribed by the Department.

5. Registration

Registration for study programmes will begin two (2) weeks after the start of the academic session.

6. Attendance

During his/her programme of study –

- (a) A candidate may be permitted to undertake part of his/her training in other hospitals or centres recognized by the Faculty;
- (b) A candidate who has been absent for a period exceeding forty-two (42) days in any academic year shall be required to undertake an extended period of training to be determined by the Faculty; provided always that the extended period of training shall not exceed the maximum period of candidature.

7. Supervision

- (a) Supervisors for candidates must be appointed no later than two (2) months after initial registration of the candidate.
- (b) A consultant shall be appointed for a candidate who undertakes part of his/her training outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.

8. Title of Research

The research project for a candidate shall be determined by the Department responsible for the candidate's programme of study not later than one month prior to the commencement of the research.

9. Submission

- (a) Candidates are required to submit a satisfactory training portfolio and have it verified by their supervisor two (2) months before the Part I Examination.
- (b) A candidate is required to submit a research report six months before the Final Examination. The candidate also needs to submit a satisfactory training portfolio and have it verified by their supervisor not later than two (2) months before the Final Examination.

10. Examinations for the Degree

- (1) The Examinations leading to the degree shall be as follows:
 - (a) The Part I Examination;
 - (b) The Final Examination.
- (2) No candidate shall be permitted to sit for the Part I Examination unless he/she has –
 - (a) Satisfactorily completed the continuous assessments prescribed by the Department; and
 - (b) Submitted a satisfactory training portfolio and verified by the supervisor, two (2) months before the Part I Examination
- (3) No candidate shall be permitted to sit for the Final Examination unless he/she has –

- (4) Exempted from the Part I Examination, if they have passed the Part II Examination for any of the following exams:
- (i) Membership of the Royal Colleges of Physicians (MRCP)
 - (ii) Membership of the Royal College of General Practitioners (MRCGP)
- (5) Satisfactorily completed the components of the continuous assessments as specified by the Department.
- (a) Submitted a satisfactory training portfolio and verified by the supervisor two (2) months before the Final Examination.
 - (b) Submitted a research report six months before the Final Examination.
- (6) The Part I Examination shall be held at the end of the first year of the programme of study. The Final Examination shall be held at the end of the fourth year of the programme of study.
- (7) Examination Components and Allocation of Marks

(a) Part I Examination

The components of the Part I Examination and the marks to be allocated to each component shall be as follows:

Component	Description	Allocation of Marks (Maximum)
(A) Written	Single Best Answer	200
	Short answer Type Questions 1	100
	Short answer Type Questions 2	100
	Total	<u>400</u>
(B) Clinical	Objective Structured Clinical Examination	200
	Short Cases	200
	Viva	200
	Total	<u>600</u>
Grand Total		<u>1000</u>

(b) Final Examination

The components of the Final Examination and the marks to be allocated to each component shall be as follows:

Component	Description	Allocation of Marks (Maximum)
(A) Research	Research Report	<u>50</u>
	Total	<u>50</u>
(B) Written	Single Best Answer	200

	Short Answer Type Question	<u>200</u>	
	Total	400	
(C) Clinical			
	Long Cases	100	
	Short Cases	200	
	Objective Structured Clinical Examination	200	
Viva			<u>50</u>
	Total	550	
	Grand Total	<u>1000</u>	

(8) Requirements for Passing an Examination

A candidate shall be deemed to have passed the Examinations prescribed below if he/she has obtained:

(a) Part I Examination

50% or more of the marks for each sub component of the Part I Examination.

Only candidates that passed the Component A examination, will be allowed to sit for the Component B examination.

(b) Final Examination

50 % or more of the marks for each sub component of the Final Examination.

Only candidates who have passed the Component A examination, will be allowed to sit for the Component B examination, and only candidates that passed the Component B examination, will be allowed to sit for the Component C examination.

For the clinical long case and short case examination, the passing criteria for this part is determined by the majority of the examiner's votes and not by the marks. But in case of even votes encountered, then the average marks will be considered as the passing criteria.

(9) Pass the Exam with Distinction

A candidate can obtain a Pass with Distinction in the Examination if he/she –

- (a) has obtained 75% or more of the aggregate marks in each prescribed Examination;
- (b) did not fail and did not repeat any component of the Examination.

(10) Repeating an Examination

(a) Part I Re-Examination

- (i) A candidate who has failed the Part I Examination may be permitted a re-examination on two separate occasions at six months intervals.
- (ii) The Part I Re-Examination shall consist of the components that has failed and shall be assessed and graded in the same manner as prescribed for the Part I Examination.
- (iii) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Part I Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.

(b) Final Re-Examination

A candidate who has failed the Final Examination may be permitted a re-examination on two separate occasions at six months intervals.

- (i) The Final Re-Examination shall consist of the components that has failed and shall be assessed and graded in the same manner as prescribed for the Final Examination.
- (ii) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Final Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.
- (iii) A candidate who has passed the re-examination for the Examinations shall be deemed to have passed the prescribed Examinations.

11. Award of Degree

(a) Awarding of the Master's Degree in Sports Medicine

Candidates must meet the following requirements for graduation purposes for the Master of Sports Medicine program:

- (i) pass the Examination prescribed for the Master's Degree program in Clinical;
- (ii) meet other requirements set by the Faculty if any, for the relevant Clinical Master's Degree program;
- (iii) meet the language requirements as prescribed; and
- (iv) meet other requirements approved by the Senate from time to time.

(b) Awarding of Master's Degree in Sports Medicine (With Distinction)

A candidate may be awarded a Master's Degree in Sports Medicine (With Distinction) if he/she –

- (i) has passed with Distinction in all examination components; and
- (ii) did not fail and did not repeat any component of the Examination within the prescribed period.

**MASTER OF SPORTS MEDICINE
PROGRAMME SCHEDULE**

S T A G E II	Year 4	(a) Advance training in the following Sports Medicine modules Module A – Sports Sciences Module B – Clinical Sports Medicine Module C – Principles of Exercise Prescription Module D – Sports Rehabilitation Module E – Sports Coverage and Emergencies Module F – Specialty Training Module G – Clinical Research (b) Assignments; (c) The keeping of portfolio by the candidate to document assignments and activities of teaching and learning attended; (d) Continuous assessments as prescribed by the Department; and (e) Research report.	Final Examination
	Year 3		
	Year 2		
	(36 months)		
S T A G E I	Year 1 (12 months)	(a) Introduction and basic sciences in the following Sports Medicine modules Module A – Sports Sciences Module B – Clinical Sports Medicine Module C – Principles of Exercise Prescription Module D – Sports Rehabilitation Module E – Sports Coverage and Emergencies Module F – Specialty Training Module E – Clinical Research (b) Assignments; (c) The keeping of portfolio by the candidate to document assignments and activities of teaching and learning attended. (d) Continuous assessments as prescribed by the Department.	Part 1 Examination
			Registration (Entrance Examination)

Name of Programme : Master of Surgery
Faculty : Faculty of Medicine

1. Classification of Programme

The Master of Surgery programme is a clinical coursework programme in which the research component comprises less than thirty (30) percent of the whole programme of study.

(1) Entry Requirements

(a) Entry qualifications

- (i) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or an equivalent medical qualification approved by the Senate; and
- (ii) At least one (1) year of post-full registration clinical experience in general surgery approved by the Senate.

(b) Other requirements

- (i) Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
- (ii) Pass the entrance evaluation and interview.
- (iii) Candidates who are Non-Citizen will be required to undertake and satisfactorily complete a three (3) months period of clinical attachment in the Department of Surgery prior to acceptance into the programme. A satisfactory attachment performance evaluation is a pre-requisite for entry into the programme

(c) English requirement

The Non-Malaysian applicant whose degree is from university or institution of higher learning that did not use English as the medium of instruction for that degree shall be required:

Type of English Qualifications		Minimum Score
International English Language Testing (IELTS)		6
Test of English as a Foreign Language (TOEFL)	IBT (Centre based)	60
	IBT Essentials	8.5
Pearson Test of Academic English (PTE)		59
Cambridge English Qualifications and Tests	B1 Preliminary, B2 First, C1 Advanced, C2 Proficiency	169
	Lingua skill Online	169
	Occupational English Test (OET) (Conventional/Online)	250

3. Duration of Study

- (1) The minimum duration of study shall be four years.
- (2) The maximum duration of study shall be seven years.

4. Structure of Programme

The programme of study comprises three (3) stages as follows:

- (1) Stage I, comprising:
 - (a) six (6) months of General Surgery posting including courses in Applied Basic Sciences and Principles of Surgery;
 - (b) the option of a further six (6) months of General Surgery OR two posting of three (3) months each in Accident and Emergency, Orthopaedic Surgery, Intensive Care, Anaesthesiology, Obstetrics and Gynaecology, Radiology or any other surgical specialty not covered in Stage II, subject to approval by the Department of Surgery and Faculty of Medicine.
 - (c) initiation of a research project
 - (2) Stage II, comprising:
 - (a) twelve (12) months of rotation in surgical specialties comprising four (4) postings of three (3) months each: two compulsory postings in Urology and Neurosurgery, and a further two postings in any of the following: Cardiothoracic Surgery or Critical Care Medicine, Plastic and Reconstructive Surgery, Paediatric Surgery.
 - (b) continuation of a research project
 - (3) Stage III, comprising:
 - (a) Twenty four (24) months in General Surgery including rotating through which may include Colorectal, Upper Gastrointestinal, Hepatobiliary, Breast, Endocrine, Vascular and Trauma Surgery general surgical sub-specialities;
 - (b) submission of a research report.
- (d) A candidate is required to keep a training portfolio throughout the period of study to document the procedures, duties and clinical skills training undertaken. This record will be assessed as part of the continuous work-place assessment.

5. Registration

Registration for the programme of study shall commence for two (2) weeks after the start of the academic session.

6. Attendance

During his/her programme of study -

- (1) A candidate may be permitted to undertake part of his/her programme of study in other hospitals or centres recognised by the Faculty;
- (2) A candidate who has been absent for a period exceeding forty-two (42) days in any academic year shall be required to undertake an extended period of training to be

determined by the Faculty; provided always that the extended period of training shall not exceed the maximum period of candidature.

7. Supervision

- (1) The supervisor for a candidate shall be appointed not later than two (2) months after the initial registration of the candidate.
- (2) A consultant shall be appointed for a candidate who undertakes part of his/her programme of study outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.

8. Research Report

The research project for a candidate shall be proposed by the candidate in discussion with their supervisor not later than six months after passing the Part I Examination. Research proposals must be vetted by the Department in the Faculty responsible for the candidate's programme of study.

9. Submission

- (1) A candidate is required to submit his/her training portfolio and satisfactory end-of-posting reports every six (6) months for assessment by the Department in the Faculty responsible for the candidate's programme of study.
- (2) A candidate is required to submit his research report not later than three months before the Final Examination.

10. Examination for the Degree

- (1) The Examinations leading to the degree shall be as follows:
 - (a) the Part I Examination; and
 - (b) the Final Examination.
- (2) No candidate shall only be permitted to sit for the Final Examination if he/she has:
 - (a) Passed or been exempted from the Part I Examination
 - (b) Passed the annual clinical evaluation
 - (c) Submitted three satisfactory case write-ups, and
 - (d) Submitted a research report that has been assessed as of satisfactory not later than three (3) months before the Final Examination.
- (3) A candidate may be exempted from the Part I Examination if he/she has passed:
UK Intercollegiate MRCS Examination (Part A and B)
- (4) The Part I Examination shall be held at the end of the first six months of the Phase I of the programme of study. The Final Examination shall be held at the end of the Phase III of the programme of study.
- (5) Examination Components and Allocation of Marks
 - (a) Part I Examination

The components of the Part I Examination and the marks to be allocated for each component shall be as follows:

Component	Description	Allocation of Marks (Maximum)
A. Written		
	Paper 1 Applied Basic Sciences (Single Best Answer)	135
	Paper 2 Principle of Surgery (Single Best Answer and Extended Matching Question)	<u>135</u>
	Total	<u>270</u>
B. Clinical	OSCE	<u>360</u>
	Grand Total	<u>630</u>

The OSCE examinations shall consist of the following components:

COMPONENT	NO OF STATIONS	Allocation of Marks
ANATOMY	3	60
PHYSIOLOGY	3	60
PATHOLOGY	2	40
MICROBIOLOGY	2	40
PRINCIPLES OF SURGERY	8	160

A candidate who does not pass the written component of the Part I Examination will not be permitted to sit for the clinical examination.

(b) Final Examination

The components of the Final Examination and the marks to be allocated to the various components of the Final Examination shall be as follows:

Component A is marked using an open system on a continuous scale, where the maximum combined mark of Paper 1 and Paper 2 is 360.

Component	Description	Allocation of Marks (Maximum)
A. Written		
	Paper 1	180
	Paper 2	180
	Total	<u>360</u>

Components B and C are marked using a closed system, in which the category of marks is as follows:

12	: Distinction
11	: Good Pass
10	: Pass
9	: Borderline
8	: Fail

Number of marking stations - Viva voce	: 16
Maximum mark for Viva voce	: 16 x 12 = 192
Pass mark for Viva voce	: 16 x 10 = 160

Number of marking stations - Clinical Long Cases	: 6
Maximum mark for Clinical Long Cases	: 6 x 12 = 72
Pass mark for Clinical Long Cases	: 6 x 10 = 60

Number marking stations - Clinical Short Cases	: 9
Maximum mark for Clinical Short Cases	: 9 x 12 = 108
Pass mark for Clinical Short Cases	: 9 x 10 = 90

B. Viva Voce

Principles of Surgery (including critical care) 1	40
Principles of Surgery (including critical care) 2	40
Surgical Pathology	40
Operative Surgery	<u>40</u>

Total required to pass component	<u>160</u>
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C. Clinical

Long case 1	30
Long case 2	<u>30</u>
Total required passing component:	<u>60</u>

Short cases	<u>90</u>
Total required to pass component:	<u>90</u>

(6) Requirements for Passing an Examination

A candidate shall be deemed to have passed the Examinations prescribed below if he/she has obtained:

(a) Part I Examination

- (i) 50% or more of the aggregate combined marks of all the components;
- (ii) 50% or more of the marks for each component for the Examination; and
- (iii) 50% or more of the marks for all components for the OSCE examination. Each of these components has to be passed individually and the marks from these components cannot cross-compensate in the calculation of the overall pass mark.

(b) Final Examination

- (i) 50% or more of the aggregate combined marks for Component A; and
- (ii) The pass mark for Component B; and
- (iii) The pass marks for component C.

Note: A candidate who obtains less than 50% of the aggregate marks in component A is not eligible to sit for component B and C.

(7) Pass the Examination with Distinction

A candidate may be Obtained a Pass with Distinction in the Part I Examination and the Final Examination if he/she-

- (a) has obtained 75% or more of the aggregate combined marks in each of the prescribed Examinations;
 - (b) has not failed in any component of the prescribed Examination; and
 - (c) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.
- (8) Repeating an Examination
- (a) Part I Re-Examination
 - (i) A candidate who has failed the Part I Examination may be permitted a re-examination on two separate occasions at six (6) monthly intervals.
 - (ii) The Part I Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Part I Examination. However, a candidate who has passed the written components previously will not be required to re-sit these components at the subsequent Part I Re-Examination.
 - (iii) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Part I Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.
 - (b) Final Re-Examination
 - (i) There is not limit on the total attempts in the Final Examination, as long as the candidate is still within the maximum duration of study which shall be seven years from the first date of registration.
 - (ii) The Final Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Final Examination. However, a candidate who has passed Component A previously will not be required to re-sit this component for two subsequent Final Re-Examination. Should the candidate fail the two subsequent Final Re-Examinations, he will be required to re-sit Component A at the third subsequent Final Re-Examination.
 - (iii) After the maximum duration of study is over the candidate is considered to have failed the Final Examination and shall not be permitted to repeat the programmes of study.

11. Award of Degree

(1) Award of the Degree of Master of Surgery

A candidate shall meet the following requirements for the purpose of graduation for the programme of Master of Surgery:

- (a) passes the prescribed Examination for the Master's Degree programme by Clinical concerned;
- (b) fulfils other requirements set by the Faculty, if any, for the Master's Degree programme by Clinical concerned;
- (c) fulfils the language requirements, if any, as prescribed; and
- (d) fulfils other requirements approved by Senate from time to time.

(2) Award of the Degree of Master of Surgery (With Distinction)

A candidate may be awarded the degree of Master of Surgery (With Distinction) if he/she -

- (a) has passed with Distinction in the Final Examination; and
- (b) has not failed and has not repeated any component of the Examination or any part of the programme of study within the prescribed period except on medical or compassionate grounds accepted by the Faculty.

**MASTER OF SURGERY
PROGRAMME SCHEDULE**

S T A G E III	Year 4	<ul style="list-style-type: none"> ▪ 24-months rotation in General Surgery sub-specialties ▪ Rotations in General Surgery sub-specialties namely Colorectal, Breast, Vascular, Endocrine, Hepatobiliary and Upper Gastrointestinal 	Final Examination
	Year 3		
S T A G E II	Year 2	<ul style="list-style-type: none"> • 12-months rotation in Surgical specialties • 4 rotations (total 12 months), each rotation lasting 3 months in Surgical specialties, including 2 compulsory rotations in Urology and Neurosurgery and any 2 elective specialties out of 3, namely Cardiothoracic Surgery, Plastic Surgery and Paediatric Surgery 	
S T A G E I	Year 1	<ul style="list-style-type: none"> ▪ General Surgery (6 months) ▪ Emergency Medicine (3 months) ▪ Orthopaedic Surgery or any surgery related elective posting (3 months) 	<p>Part I Examination (At the end of the first six months of Stage I)</p> <p>Registration (Entrance Evaluation)</p>

Name of Programme : Master of Neurosurgery
Faculty : Faculty of Medicine

1. Classification of Programme

The Master of Neurosurgery programme is a clinical coursework programme in which the research component comprises less than thirty (30) per cent of the whole programme of study.

2. Entry Requirements

- The degree of Bachelor of Medicine and Bachelor of Surgery or an equivalent medical qualification approved by the Senate; and
- At least one year of post-full registration clinical experience approved by the Senate.
- Qualifies for registration as a medical practitioner under the Medical Act 1971 (Act 50) of Malaysia; and
- Pass the entrance assessment set by the Department

Language Requirement

The Non-Malaysian applicant whose degree is from university or institution of higher learning that did not use English as the medium of instruction for that degree shall be required:

Type of English Qualifications		Minimum Score
International English Language Testing (IELTS)		6
<i>Test of English as a Foreign Language (TOEFL)</i>	IBT (<i>Centre based</i>)	60
	IBT <i>Essentials</i>	8.5
<i>Pearson Test of Academic English (PTE)</i>		59
<i>Cambridge English Qualifications and Tests</i>	<i>B1 Preliminary, B2 First, C1 Advanced, C2 Proficiency</i>	169
	<i>Lingua skill Online</i>	169
	<i>Occupational English Test (OET) (Conventional/Online)</i>	250

3. Duration of Study

- The minimum duration of study shall be four (4) years.
- The maximum duration of study shall be seven (7) years.

4. Structure of Programme

The programme of study comprises three phases as follows:

- Phase I (Year 1):
 - twelve (12) months of four (4) core subjects; and
 - one (1) elective subject

- (2) Phase II (Year 2 & Year 3):
 - (a) twenty four (24) months of two (2) core subjects; and
 - (b) initiation of a research project
- (3) Phase III (Year 4):
 - (a) twelve (12) months of one (1) core subjects; and
 - (b) submission of a research report.
- (4) A candidate is required to keep a log book throughout his/her period of study to document tasks undertaken.

Programme Goal

To produce neurosurgeons of highest knowledge, skills, attitude and ethics who will be able to contribute positively to enhance the health services in our country.

Programme Educational Objectives (PEO)	
PEO1	Produce expert practioners in the field of neurosurgery who are higly knowledgeble
PEO2	Highly competent in the practical and clinical aspects of neurosurgery and its subspecialties
PEO3	Effectively contribute to the development of national healthcare by adhering to the principles of ethics, professionalism and social responsibility

Programme Learning Outcomes (PLO)	
PLO1	Apply advanced concepts and principles of neurosurgery in the care of patients in a safe, effective and efficient way
PLO2	Perform neurosurgical procedures at advanced levels in all areas of neurosurgical subspecialties
PLO3	Apply the skills and social responsibilities necessary in daily clinical practice
PLO4	Display a high standard of ethics, professionalism and appropriate personal attitudes during the conduct of daily responsibilities
PLO5	Communicate and interact effectively while displaying leadership qualities and the ability to work in a team with all levels of staff, including hospital management and patients
PLO6	Critically analyse and conduct scientific research to solve problems related to the services of Neurosurgery
PLO7	Apply knowledge and information through the use of information technology in the clinical services and develop a lifelong learning culture

List of programme core courses and programme elective courses are as bellow:

Year	Component	Code	Course	SLT
1	Core Programme	MSA7001	Research Methodology	72
		MSA7004	Basic Neuroscience	256
		MSA7005	Principles of Surgery	190
		MSA7006	Basic Neurosurgery	240
	Elective Programme	MSA7009	Neurology	157*
		MSA7010	Neurocritical care	157*
	Jumlah SLT			915

Year	Component	Code	Course	SLT
2	Core Programme	MSA7003	Ethics and Professionalism	66
		MSA7007	Intermediate Neurosurgery	522
	Research Project	MSA7002	Research Project	60
	Jumlah SLT			648

Year	Component	Code	Course	SLT
3	Core Programme	MSA7007	Intermediate Neurosurgery	522
	Research project	MSA7002	Research project	85
	Jumlah SLT			607

Year	Component	Code	Course	SLT
4	Core Programme	MSA7008	Advanced Neurosurgery	575
	Research project	MSA7002	Research Project	30
	Jumlah SLT			605

5. Registration

Registration for the programme of study shall commence the week prior to the start of the academic session.

6. Attendance

During the programme of study -

- (1) A candidate may be permitted to undertake part of his/her programme of study in other hospitals or centres recognised by the Faculty;
- (2) A candidate who has been absent for a period exceeding forty-two (42) days in any academic year shall be required to undertake an extended period of training to be determined by the Faculty; provided always that the extended period of training shall not exceed the maximum period of candidature.

7. Supervision

- (1) The clinical supervisor for a candidate shall be appointed not later than two months after the registration of the candidate. The research supervisor shall be appointed subsequent to the candidate passing the Part I examination.
- (2) A consultant shall be appointed for a candidate who undertakes part of his/her programme of study outside the University. The consultant shall be appointed not later than two months after the candidate has commenced training in the outside location.

8. Research Project

The research project for a candidate shall be proposed by the candidate in discussion with their supervisor not later than six (6) months after passing the Part I Examination. Research proposals must be vetted by the Department in the Faculty responsible for the candidate's programme of study.

9. Submission

- (1) A candidate is required to submit his/her log book and end-of-posting reports every six 2. months for assessment by the Department in the Faculty responsible for the candidate's programme of study.
- (2) A candidate is required to submit his research report not later than three (3) months before the Final Examination.

10. Examination for the Degree

- (1) The Examinations leading to the degree shall be as follows:
 - (a) the Part I Examination; and
 - (b) the Final Examination.
- (2) A candidate shall only be permitted to sit for the Part I Examination if the candidate has:
 - (a) Submitted satisfactory 162ulfil162ous assessment for each subject
 - (b) Submitted satisfactory supervisors report, operative competency report and operative log book.
- (3) A candidate shall only be permitted to sit for the Final Examination if the candidate has:
 - (a) Passed the Part I Examination
 - (b) Passed the clinical evaluation
 - (c) Submitted satisfactory continuous assessment for each subject
 - (d) Submitted satisfactory supervisors report, operative competency report and operative log book
 - (e) Submitted a research report that has been assessed as of sufficient standard not later than three (3) months before the Final Examination.
- (4) The Part I Examination shall be held at the end of Phase I of the programme of study. The Final Examination shall be held at the end of Phase III of the programme of study.
- (5) Examination Components and Allocation of Marks:
 - (a) Part I Examination

The components of the Part I Examination and the marks to be allocated for each component shall be as follows:

Component	Description	Allocation of Marks
A. Written		
Paper 1	Single Best Answer (SBA)	40%
Paper 2	Extended Matching Question (EMQ)	20%
B. Clinical	OSCE	<u>40%</u>

Grand Total 100%

(b) Final Examination

The components of the Final Examination and the marks to be allocated to the various components of the Final Examination shall be as follows:

Component	Description	Allocation of Marks
A. Written	Single Best Answer (SBA)	30%
B. Clinical		
Long Case	One (1) case	30%
Short Case	Six (6) cases	20%
C. Viva-voce	Four (4) tables	<u>20%</u>
Grand Total		<u>100%</u>

6. Requirements for Passing an Examination

A candidate shall be deemed to have passed the Examinations prescribed below if he/she has obtained:

(a) Part I Examination

- (i) 50% or more of the marks for each component of the Examination; and
- (ii) 50% or more of the aggregate combined marks of all the components.

(b) Final Examination

- (i) 50% or more of the marks for Component A; and
- (ii) 50% or more of the aggregate combined marks for Component B; (Candidate must pass 4 from the total of 6 short cases); and
- (iii) 50% or more of the aggregate combined marks for Component C.

Note: A candidate who obtains less than 50% of the marks in component A is not eligible to sit for component B and C.

7. Repeating an Examination:

(1) Part I Re-Examination

- (i) A candidate who has failed the Part I Examination may be permitted a re-examination on two separate occasions at six (6) monthly intervals.
- (ii) The Part I Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Part I Examination.
- (iii) A candidate who fails the re-examination on the second occasion shall be deemed to have failed the Part I Examination and shall not be permitted to repeat the programme of study except in special circumstances on the recommendation of the Faculty of Medicine and with the approval of Senate.

(2) Final Re-Examination

- (i) The Final Re-examination will be held every six (6) months. There is no limit on the total attempts, as long as the candidate is still within the maximum duration of study which shall be seven (7) years from the first date of registration.
- (ii) The Final Re-Examination shall consist of the same components and shall be assessed and graded in the same manner as prescribed for the Final Examination. However, a candidate who has passed Component A previously will not be required to re-sit this component for one subsequent Final Re-Examination. Should the candidate fail the one subsequent Final Re-Examinations, he will be required to re-sit Component A at the two subsequent Final Re-Examination.
- (iii) After the maximum duration of study is over, the candidate is considered to have failed the Final Examination and shall not be permitted to repeat the programmes of study.

11. Award of Degree

No candidate shall be recommended for the award of the Degree of Master of Neurosurgery unless he/she has successfully completed all parts of the course, completed the minimum duration of the study and has passed the prescribed Examinations.

(a) Award of Pass with Distinction for the Examination

A candidate may be awarded a Pass with Distinction in the Part I Examination and the Final Examination if he/she –

- (i) has obtained 75% or more of the aggregate marks in each of the prescribed Examination;
- (ii) has not failed in any component of the prescribed Examination; and
- (iii) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

(b) Award of the Degree with Distinction

A candidate may be awarded the degree of Master of Neurosurgery with Distinction if he/she –

- (i) has passed with Distinction in the Final Examination;
- (ii) has not failed in any component of the prescribed Examination; and
- (iii) has not repeated the prescribed Examination or any part of the programme of study except on medical or compassionate grounds acceptable to the Faculty.

Master of Neurosurgery Programme Schedule

P H A S E III	Year 4	<ul style="list-style-type: none"> ▪ Advanced neurosurgery ▪ Submission of a research project 	Final Examination (At the end of Year 4)
P H A S E II	Year 3 Year 2	<ul style="list-style-type: none"> ▪ Intermediate neurosurgery ▪ Ethics and professionalism ▪ Initiation of a research project 	
P H A S E I	Year 1	<ul style="list-style-type: none"> ▪ Basic neurosurgery ▪ Research methodology ▪ Principles of surgery ▪ Basic neuroscience ▪ Neurology or Neurocritical care 	Part I Examination (At the end of the Year 1) Registration (Entrance Evaluation)

POSTGRADUATE HANDBOOK 2023/2024 SESSION

FACULTY OF MEDICINE, UNIVERSITI MALAYA

SEMESTER I				
Lectures	7 weeks*	09.10.2023	-	26.11.2023
Mid Semester I Break	1 week	27.11.2023	-	11.12.2023
Lectures	7 weeks*	04.12.2023	-	21.01.2024
Revision Week	1 week	22.01.2023	-	28.01.2024
Examinations Semester I	2 weeks*	29.01.2023	-	11.02.2024
Semester I Break	3 weeks*	12.02.2023	-	03.03.2024

22 weeks				
=====				
SEMESTER II				
Lectures	5 weeks*	04.03.2024	-	07.04.2024
Mid Semester II Break	1 week	08.04.2024	-	30.04.2024
Lectures	9 weeks*	15.04.2024	-	16.06.2024
Revision Week	1 week	17.06.2024	-	26.06.2024
Examinations Semester II	2 weeks*	24.06.2024	-	07.07.2024

18 weeks				
=====				
SEMESTER BREAK				
Break	9 weeks*	08.07.2024	-	08.09.2024
SPECIAL SEMESTER				
Lectures	7 weeks*	08.07.2024	-	25.08.2024
Examination Special	1 week	26.08.2024	-	01.09.2024
Semester				
Break	1 week	02.09.2024		08.09.2024

8 weeks				
=====				

Name of Programme : Master of Medical Education
Mod : By Coursework
Faculty : Faculty of Medicine

1. Classification of Programme

The Master of Medical Education is a programme by coursework in which the credits for the research component comprises less than thirty (30) percent of the total credits for the whole programme of study. After completion of the relevant courses of study specified in this Schedule, a candidate shall be eligible for the award of the Master of Medical Education degree.

2. Entry Requirements

A bachelor's degree with a CGPA of not less than 3.00;

Or

A Bachelor of Medicine and Bachelor of Surgery or equivalent medical qualification;

Or

A Bachelor's degree in allied health or equivalent qualification with a CGPA of at least 3.00;

Or

A Bachelor's degree or equivalent qualification with a CGPA of at least 3.00 and fulfil following requirement:

(a) working experience in related field not less than (1) year;

Or

A Bachelor's degree in allied health or equivalent qualification in related fields with a CGPA between 2.70 to 2.99 and fulfill at least one (1) criteria as follows:

- (a) Graduate of Universiti Malaya;
- (b) Has at least one (1) year of working experience in the related field;
- (c) Has produced publications in the related field;
- (d) A scholarship recipient;
- (e) A government servant;
- (f) Passed the interview conducted by the Faculty; or
- (g) Passed the special assessment by the Faculty

Or

A Bachelor's degree in allied health or equivalent qualification with a CGPA between 2.50 to 2.69 and fulfill at least one (1) criteria (for UM graduate applicant) or two (2) criteria (for non UM graduate applicant) as follows:

- (a) Graduate of Universiti Malaya;
- (b) Has at least one (1) year of working experience in the related field;
- (c) Has produced publications in the related field;

- (d) A scholarship recipient;
- (e) A government servant;
- (f) Passed the interview conducted by the Faculty; or
- (g) Passed the special assessment by the Faculty

Or

A Bachelor's degree in allied health or equivalent qualification with a CGPA between 2.00 to 2.49 and fulfill at least one (1) criteria (for UM graduate applicant) or two (2) criteria (for non UM graduate applicant) as follows:

- (a) Has at least five (5) years of working experience in the related field;
- (b) Published at least one (1) publication in a refereed journal in the related field;
- (c) Passed the interview conducted by the Faculty (compulsory for non UM graduate applicant); or
- (d) Passed the Faculty's special assessment

Or

Other qualifications approved by the Senate from time to time.

Other prerequisites and skills and conditions/qualifications if required.

Language Requirement

The Non-Malaysian applicant whose degree is from university or institution of higher learning that did not use English as the medium of instruction for that degree shall be required:

Type of English Qualifications		Minimum Score
International English Language Testing (IELTS)		6
Test of English as a Foreign Language (TOEFL)	IBT (Centre based)	60
	IBT Essentials	8.5
Pearson Test of Academic English (PTE)		59
Cambridge English Qualifications and Tests	B1 Preliminary, B2 First, C1 Advanced, C2 Proficiency	169
	Lingua skill Online	169
	Occupational English Test (OET) (Conventional/Online)	250

3. Duration of Study

- (1) The minimum duration of study shall be two (2) semesters and one (1) special semester
- (2) The maximum duration of study shall be eight (8) semesters

4. Structure of Programme

- (1) The Master of Medical Education programme by coursework comprises forty two (42) credits as follow:
 - (a) six (6) core courses, each of three (3) credits, totalling eighteen (18) credits;
 - (b) four (4) out of a total choices of six (6) elective courses, each of three (3) credits, totaling twelve (12) credits; and
 - (c) a research project of twelve (12) credits.
- (2) Details of the courses offered are as approved by Senate from time to time on the recommendation of the Faculty and candidates shall be informed of such details at the beginning of each session.
- (3) The lists of courses for the programme of Master of Medical Education are provided in List 1.

Programme Aim

The Master of Medical Education aims to produce professional medical educators who continually equip themselves with required knowledge, skills and attitudes towards advancement of medical education

Programme Educational Objectives (PEO)	
PEO1	Graduates are able to address current issues in medical and health professions education using theoretical knowledge, critical thinking, creative and innovative skills.
PEO2	Graduates are able to demonstrate practical, digital and communication skills that convey educational information to learners, peers, scholarly communities and society at large in the field of medical and health professions education.
PEO3	Graduates are able to demonstrate self-initiatives, personal management and professionalism for continuing medical and health professions education.

Programme Learning Outcomes (PLO)	
PLO1	Analyse the principles and theories in understanding medical and health professions education.
PLO2	Apply critical and creative thinking skills in addressing current needs in medical and health professions education.
PLO3	Demonstrate procedural (practical) skills in developing, implementing or evaluating curriculum and research outcomes in medical and health professions education.
PLO4	Demonstrate information sharing skills effectively to learners, peers, scholarly communities and society at large in the field of medical and health professions education.
PLO5	Apply digital technologies and statistical skills in developing, implementing or evaluating curriculum and research outcomes in medical and health professions education.
PLO6	Demonstrate reflective practices in application of professionalism in self-management, autonomy and responsibility.
PLO7	Perform self-reflection and evaluation to advance oneself in continuous learning and improvement.
PLO8	Apply principles of professionalism to ethical and professional challenges at workplace.

List 1

Code	Title	Credits
Core Courses		
MQE7018	Research Methodology in Medical Education	3
MQE7024	Research Project (P)	12
MQE7019	Curriculum Development	3
MQE7020	Teaching Methods in Medical Education	3
MQE7021	Concepts of Learning	3
MQE7014	Assessment	3
MQE7022	Management and Leadership in Medical Education	3
Elective Courses		
MQE7015	Health Professions Educator	3
MQE7023	Professionalism in Medical Education	3
MQE7016	Instructional Design	3
MQE7011	Qualitative Research in Medical Education	3
MQE7012	Quantitative Research in Medical Education	3
MQE7017	Communication Skills and Workplace-Based Learning	3
Total		42

➤ MQE7018: Research Methodology in Medical Education (3 credits)

Learning Outcomes

At the end of this course, students are able to have:

1. Demonstrate skills in reviewing and critique literature using at least one online database/journal.
2. Communicate a research/knowledge gap to the scholarly community by generating and presenting a problem statement, research objectives/questions and conceptual framework.
3. Design methodology to achieve research objectives in an ethical manner.

Synopsis

Students will explore qualitative, quantitative and mixed-method research in health professions education. At the beginning, students will be introduced to conceptual framework of an education research. Then, students learn to construct a researchable problem in health care training institutes which leads to the conceptions of research objectives and questions. Next, for qualitative paradigm, students will discuss the qualitative inquiry, data collection techniques, reliability and validity and data analysis. For quantitative paradigm, hypotheses, sampling, research designs, instruments, reliability and validity will be discussed. Students will be also introduced to mixed-method design research and its differences with quantitative and qualitative research. As the course progresses, students will in prepare and present a research proposal. Ethical issues on conducting a research will also be discussed.

Main Reference

1. Creswell, J.W., & Guetterman, T.C. (2019). Educational research: Planning, conducting and evaluating quantitative and qualitative research (6th ed.). Saddle River, New Jersey : Pearson.
2. Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2015). How to design and evaluate research in education (9th ed.). New York: McGraw Hill, Inc.
3. Merriam, S. B., Tisdell, Elizabeth, J. (2016). Qualitative research: a guide to design and implementation (4th ed.). San Francisco, California : Jossey-Bass.
4. Patton, M. Q. (2015). Qualitative research & evaluation methods: Integrating theory and practice (4th ed.). Thousand Oaks, California : SAGE Publications.

Assessment Weightage

Continuous Assessment: 100%

Final Examination:-

➤ MQE7024: Research Project (12 credits)

Learning Outcomes

At the end of this course, students are able to:

1. Present progress of research project which includes (at least) problem statement, research objectives and questions, literature review, theoretical and conceptual framework of the study, and methodology, within one semester after course registration.
Apply research skills to produce a final research report (minimum of 18000 words, but not exceeding 30,000 words) which includes (at least) a chapter on the introduction of the study, a chapter on literature review, a chapter on theoretical framework and conceptual framework of the study, a chapter on methodology, a chapter on research findings and discussions, and a chapter on conclusions and implications of the study.
2. Demonstrate self-initiative to use latest (within 5 years) and appropriate citations (APA style) of sources in the final research report.
3. Adhere to research ethics for education research in conducting the research project.
4. Practise research management (including but not limited to self management, self regulation and self responsibilities) by communicating research progress to supervisors, from time to time throughout the research project period.

Synopsis

Students will practice as novice researchers such as academicians, researchers and consultants in public, private, non-profit organisations or non-government organisations. Students will carry out steps in the process of research: identifying a research problem, reviewing the literature, specifying a purpose and research questions or hypotheses, collecting quantitative/qualitative data, analysing and interpreting quantitative/qualitative data, reporting and evaluating research. It requires commitments from both students and their supervisor. Personal skills, ethics and professionalism are emphasised in the process of planning, implementing, analysing and reporting the study.

Main Reference

1. Creswell, J.W., & Guetterman, T.C. (2019). Educational research: Planning, conducting and evaluating quantitative and qualitative research (6th ed.). Saddle River, New Jersey : Pearson.
2. Field, A. P. (2018). Discovering statistics using IBM SPSS statistics (5th ed.). London: SAGE.
3. Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2015). How to design and evaluate research in education (9th ed.). New York: McGraw Hill, Inc.
4. Merriam, S. B., Tisdell, Elizabeth, J. (2016). Qualitative research: a guide to design and implementation (4th ed.). San Francisco, California : Jossey-Bass.
5. Patton, M. Q. (2015). Qualitative research & evaluation methods: Integrating theory and practice (4th ed.). Thousand Oaks, California : SAGE Publications.

Assessment Weightage

Continuous Assessment: 100%

Final Examination: -

➤ MQE7019: Curriculum Development (3 credits)

Learning Outcomes

At the end of this course, students are able to:

1. Apply the principles of curriculum development to conceptualise curriculum trends including (but not limited to) outcome-based education and interprofessional education.
2. Describe the process of curriculum development with the inclusion of the latest technology for teaching and learning.
3. Explain the importance of mapping the curriculum in line with the requirements of accreditation bodies.
4. Propose the cultivation of values and professionalism in curriculum development.

Synopsis

Students will explore fundamentals of an academic programme, which are the curriculum, assessment and evaluation including interprofessional education. Students will be exposed the principles of curriculum design which includes the use of technology in the teaching and learning process. Subsequently, the course exposes students to curriculum theories and various models of curriculum development. Steps in developing a curriculum will be discussed (e.g. from need assessment to programme evaluation). Students are also exposed to the concept of spiral curriculum and intergrated curriculum. Students will also be introduced to principles of assessment and various assessment tools in terms of (but not limited to) reliability and validity. Students are also introduced to programme evaluation for medical schools including internal and external evaluation as well as the accreditation process in a program. As the course progresses, students will analyse current curriculum, assessments and evaluation activities in their own healthcare training institutes. As the course progresses, ethical and professionalism issues will be discussed.

Main Reference

1. Nicholls, A., Nicholls, S. H. (2018). Developing a Curriculum: A Practical Guide Routledge Library Editions. Taylor & Francis Group.
2. Swanwick, T. (Eds.). (2014). Understanding medical education: Evidence, theory and practice. West Sussex: Wiley Blackwell.
3. Thomas, P. A., Kern, D.E., Hughes, M. T., Chen, B. Y., (2016). Curriculum Development for Medical Education: A Six-Step Approach. Johns Hopkins University Press

Assessment Weightage

Continuous Assessment: 100%

Final Examination: -

➤ MQE7020: Teaching Methods in Medical Education (3 credits)

Learning Outcomes

At the end of this course, students are able to:

1. Present a micro teaching.
2. Illustrate utilisation of effective teaching strategies to promote meaningful learning in an outcome based education approach.
3. Demonstrate procedural knowledge of tools and techniques for facilitating learning in a technology enhanced learning environment.

4. Discuss pedagogical content knowledge and impact of the quality of pedagogical approaches on the quality of future medical and health professions practitioners.

Synopsis

Students will be introduced to various teaching strategies (including simulative teaching aids) used in the context of medical and health professions' education. Focus will be upon issues such as to attract attentions from learners at the beginning of a teaching session (induction set), to promote meaningful learning (problem-based learning, inquiry-based learning and cooperative learning) during the teaching session, and to summary the learning outcomes at the end of the teaching session. Students learn to develop lesson plans by applying learning theories. Students will also explore pedagogical content knowledge in medical and health professions education. As the course progresses, students will be involved hands-on activities such as microteaching. Students will receive recommendations from peers.

Main Reference

1. Bhuiyan, P. S., Rege, N. N., & Supe, A. (Eds.). (2015). The art of teaching medical students. New Delhi: Reed Elsevier India Pvt. Ltd.
2. Harden, R. M., & Laidlaw, J. M. (2012). Essential skills for a medical teacher: an introduction to teaching and learning in medicine. Edinburgh: Churchill Livingstone/Elsevier.
3. Harden, R. M., & Lilley, P. (2018). The eight roles of the medical teacher: the purpose and function of a teacher in the healthcare professions. Elsevier Health Sciences.
4. Light, G., Cox, R., & Calkins, S. (2009). Learning and teaching in higher education: The reflective professional. (2nd.). London: SAGE.
5. Ramsden, P. (2003). Learning to teaching in higher education. (2nd.). London: Routledge Falmer.

Assessment Weightage

Continuous Assessment: 100%

Final Examination: -

➤ MQE7021: Concepts of Learning (3 credits)

Learning Outcomes

At the end of this course, students are able to:

1. Generate theoretical framework of a study in designing an educational intervention.
2. Communicate research findings to the scholar community based on the educational psychology perspectives.
3. Express values of educational psychology for the advancement in medical and health professions education by reflecting on the strengths, limitations or debate with regards to at least two learning theories, or based on teaching/learning experiences of the students themselves.

Synopsis

Students will explore various theories of learning (including but not limited to behaviourism, cognitivism, constructivism, reflection, motivation). Through discussing and reflecting the development of learning theories, students will recognise their importance and applications in teaching and learning practices. As theories are abstract ideas, students will identify the applications in medical and health professions education. As the course progresses, students will learn to communicate research findings to the scholar community based on the educational psychology perspectives. The concept of theoretical framework of a study will be discussed. Theoretical framework is an essential element in an education research. Any intervention for students should be based on learning theories as to avoid using intuition.

Main Reference

1. Driscoll, M. P. (2014). Psychology of learning for instruction (3rd ed.). Essex: Pearson Education Limited.
2. Moreno, R. (2010). Educational Psychology. Hoboken, NJ: John Wiley & Sons.
3. Santrock, J. (2021). Educational Psychology (7th ed.). New York: McGraw-Hill.
4. Schunk, D. H. (2020). Learning theories: An educational perspective (8th ed.). Hoboken, NJ: Pearson.

Assessment Weightage

Continuous Assessment: 100%

Final Examination: -

➤ MQE7014: Assessment (3 credits)

Learning Outcomes

At the end of this course, students are able to:

1. Implement an authentic assessment (self-developed) for quality assurance (valid and reliable) to a real sample.
2. Analyse validity and reliability of three selected assessment tools.
3. Evaluate validity and reliability of an actual assessment through the use of digital technology and statistics.

Synopsis

Students will explore theories and principles of educational measurement and assessment. Students will be exposed to philosophy and rationales of the “assessment for learning” (formative assessments) as well as “assessment of learning” (summative assessments). Students will learn how to develop blueprints for tests/exams.

Students will also learn how to link learning objectives to test items. Students will learn how to apply Miller’s Pyramid and Bloom’s Taxonomy as the two main theoretical frameworks to guide assessments in medical and health professions education. Students will explore examples of written assessments, clinical assessments, practical assessments as well as work-place based assessments. Students will learn the development, administration and marking of assessments, as well as analysing the validity and reliability of the assessments.

Main Reference

1. AMEE Guides related to Assessment and Evaluation.
2. Amin, Z., Chong, Y.S., & Khoo, H. E. (2006). Practical guide to medical student assessment. Singapore: World Scientific Publishing Co. Inc.
3. Jackson, N., Jamieson, A., & Khan, A. (Eds.). (2007). Assessment in medical education and training: A practical guide. UK: Radcliffe Publishing.
4. Journal articles related to Assessment and Evaluation in medical education from Academic Medicine, Medical Teacher, Medical Education, etc.
5. Mertens, D. M., & Wilson, A. T. (2012). Program evaluation theory and practice: A comprehensive guide. New York: The Guilford Press.
6. Pangaro, L. N., & McGaghie, W. (Eds.). (2015). ACE handbook on medical student evaluation and assessment. US: Alliance for Clinical Education.
7. Swanwick, T. (2018). Understanding medical education: evidence, theory and practice (3rd Ed). UK: Wiley Blackwell.

Assessment Weightage

Continuous Assessment: 100%

Final Examination: -

➤ **MQE7022: Management and Leadership in Medical Education (3 credits)**

Learning Outcomes

At the end of this course, students are able to:

1. Explore principles of management and leadership for their utility (including leader behaviour and leadership theories) in the context of medical and health professions education and practice.
2. Discuss management and leadership roles and functions (including leading self, engaging others and quality assurance) applied to academic context and workplace (organisational behaviour).
3. Discuss best (research informed) practices in management and leadership in academic context (including but not limited to ethical leadership and appreciative inquiry).
4. Demonstrate procedural knowledge on managing and leading change in the context of medical and health professions education and practice.

Synopsis

Students will explore the concept of educational management and leadership. Students will learn to develop critical understanding of organisation and approaches to promote changes in the organisation in the context of medical / health professions education. Existing and emerging trends in medical / health professions curriculum will be discussed as to study how to decide on policies based on evidence. Students acquire procedural knowledge on managing and leading changes in medical / health professions education.

Main Reference

1. Drucker, P. F. (2012). The practice of management. Oxford: Elsevier.
2. Harden, R. M., & Lilley, P. (2018). The eight roles of the medical teacher: the purpose and function of a teacher in the healthcare professions. Elsevier Health Sciences.
3. MacCarrick, G. (2013). Quality assurance in medical education: A practical guide. London: Springer.
4. Northouse, P. G. (2016). Leadership: Theory and practice (7th ed.). Los Angeles: SAGE.
5. Northouse, P. G. (2019). Introduction to leadership: Concepts and practice. Sage Publications.
6. Swanwick, T. (Eds.). (2014). Understanding medical education: Evidence, theory, and practice (2nd ed.). Chichester: Wiley Blackwell

Assessment Weightage

Continuous Assessment: 100%

Final Examination: -

➤ **MQE7015: Health Professions Educator (3 credits)**

Learning Outcomes

At the end of this course, students are able to:

1. Perform a micro teaching in the simulated clinical setting.
2. Discuss teaching strategies and aids for the medical and health professions teaching setting (pre-clinical and clinical) based on appropriate learning theories.
3. Differentiate learners' needs in terms of acquisition of skills and knowledge between clinical and pre-clinical settings.
4. Discuss a learning-friendly environment including (but not limited to) learners-teachers' dynamics to promote the acquisition of skills and knowledge in medical and health professions teaching context.

Synopsis

The course is designed for medical and health professionals who envision a career of education. Students will learn to develop the skills required to become medical and health professions teachers and mentors for younger generations of medical and health professionals. To be able to engage in the

course effectively, students are exposed to the significant role of professional values of medical and health professions teachers. Next, students learn to differentiate needs of learners in terms of acquisition of skills and knowledge between clinical and pre-clinical settings in the different contexts of medical and health professions training. Students will learn to apply teaching strategies and aids in medical and health professions training setting based on appropriate learning theories. Lastly, students learn to supervise learners' acquisition of skills and knowledge in the medical and health professions training setting, as well as creating a learning-friendly environment.

Main Reference

1. Forrest, K., McKimm, J., & Edgar, S. (Eds.). (2013). Essential simulation in clinical education. West Sussex: Wiley Blackwell.
2. Harden, R. M., & Lilley, P. (2018). The eight roles of the medical teacher: the purpose and function of a teacher in the healthcare professions. Elsevier Health Sciences.
3. McAllister, L., Lincoln, M., McLeod, S & Maloney, D. (Eds.). (1997). Facilitating learning in clinical settings. UK: Nelson Thornes Ltd.

Assessment Weightage

Continuous Assessment: 100%

Final Examination: -

➤ MQE7023: Professionalism in Medical Education (3 credits)

Learning Outcomes

At the end of this course, students are able to:

1. Demonstrate procedural knowledge of concepts of professionalism applied to medical and health professions including definitions and elements of professionalism.
2. Evaluate methods employed for teaching and learning professionalism in the context of medical and health professions education.
3. Evaluate methods employed for assessing professionalism in the context of medical and health professions education.
4. Produce a reflection on learner's own experiences of professionalism as a medical and health professions educator.

Synopsis

Students will explore the concepts of medical and health professions professionalisms. Students will learn the definitions and elements of medical and health professions professionalism. Students will learn to evaluate the methods employed to instill medical and health professions professionalism. Later, students will learn to evaluate the methods to assess professionalism in the medical and health professions context. Lastly, students will reflect on their own experiences of professionalism as a medical and health professions practitioner and educator.

Main Reference

1. Cruess, R. L., Cruess, S. R. & Steinert, Y. (Eds.). (2008). Teaching medical professionalism. New York: Cambridge University Press.
2. Hafferty, F. W. & O'Donnell, J. F. (2014). The hidden curriculum in health professional education. Lebanon NH: University Press of New England.
3. Harden, R. M., & Lilley, P. (2018). The eight roles of the medical teacher: the purpose and function of a teacher in the healthcare professions. Elsevier Health Sciences.
4. Levinson, W., Ginsburg, S., Hafferty, F. & Lucey, C. R. (2014). Understanding medical professionalism. New York: McGraw Hill Education.
5. Parsi, K. & Sheehan, M. (Eds.). (2006). Healing as vocation: A medical professionalism primer. Lanham, MD: Rowman & Littlefield Publishers.

6. Spandorfer, J. (Eds.). (2009). Professionalism in medicine: A case-based guide for medical students. New York: Cambridge University Press.

Assessment Weightage

Continuous Assessment: 100%

Final Examination: -

➤ MQE7016: Instructional Design (3 credits)

Learning Outcomes

At the end of this course, students are able to:

1. Compare differences and similarities between at least two instructional design models.
2. Plan an instruction based on principles of instructional design.
3. Evaluate digital or non-digital instruction based on principles of instructional design.
4. Apply at least one evaluation model for quality assurance of education programmes.

Synopsis

Students will learn concepts of instructional design, in the context of medical and health professions education. For example, instructional design models (including but not limited to) ADDIE, Dick and Carey are introduced. As students have acquired the knowledge, they will apply and design instructional strategies and materials, in the forms of digital and non-digital. As one part of the instructional design, students will learn to evaluate instruction. Evaluation models (including but not limited to) Kirkpatrick's Model and CIPP are introduced. Program evaluation will be discussed for quality assurance.

Main Reference

1. Dick, W., Carey, L., & Carey, J. O. (2009). The systematic design of instruction (7th ed.). New York: Allyn & Bacon.
2. Frye, A. W., & Hemmer, P. A. (2012). Program evaluation models and related theories: AMEE guide no. 67. Medical Teacher, 34(5), e288-e299.
3. Morrison, G. R., Ross, S. M., Kalman, H. K., & Kemp, J. E. (2012). Designing effective instruction. Hoboken, NJ: Wiley.
4. Reiser, R. A., & Dempsey, J. V. (Eds.). 2017. Trends and issues in instructional design and technology. Boston: Pearson.
5. Seel, N. M., Lehmann, T., Blumschein, P., & Podolskiy, O. A. (2017). Instructional design for learning: Theoretical foundations. Rotterdam: Sense Publishers.

Assessment Weightage

Continuous Assessment: 100%

Final Examination: -

➤ MQE7011: Qualitative Research in Medical Education (3 credits)

Learning Outcomes

At the end of this course, students are able to:

1. Write a research proposal with the inclusion of literature review, theoretical framework and conceptual framework with elements of professionalism in research.
2. Describe the process of data collection including communications which occurs and discussion based on the findings of the qualitative research.
3. Demonstrate skills in analysing qualitative data with the use of appropriate software and technologies.

Synopsis

Students will learn advanced research skills after they have acquired basic knowledge and skills in research. The course is recommended for students who wish to conduct qualitative research for their research projects. Students will collect authentic/actual data in the learning of analysing and interpreting qualitative data. Next, students will learn to relate findings of their studies with theoretical framework and conceptual framework with the immersion of the professionalism elements while conducting a research. Lastly, students will practice to write findings and discussions for academic papers. As the course progresses, students will be encouraged to apply knowledge and skills including the use of software and technologies learnt on their research projects.

Main Reference

1. Gaudet, S. & Robert, D. (2018). A Journey Through Qualitative Research: From Design to Reporting. Sage Publications.
2. Merriam, S. B. (2016). Qualitative research: a guide to design and implementation. San Francisco: Jossey-Bass.
3. Patton, M. P. (2015). Qualitative Research & Evaluation Methods. (4th ed.). Thousand Oaks, Calif: Sage Publications.
4. Seidman, I. (2019). Interviewing as Qualitative Research: A Guide for Researchers in Education and the Social Sciences (5th Ed.). Teachers College Press

Assessment Weightage

Continuous Assessment: 100%

Final Examination: -

MQE7012: Quantitative Research in Medical Education (3 credits)

Learning Outcomes

At the end of this course, students are able to:

1. Develop a valid questionnaire.
2. Demonstrate skills in analysing quantitative data through the use of digital technologies and statistics.
3. Present quantitative research findings to scholarly communities both orally and in written forms.
4. Evaluate quantitative research articles published in high impact journals in health professions education.

Synopsis

Students will learn advanced research skills after they have acquired basic knowledge and skills in research. The course is recommended for students who wish to conduct quantitative research for their research projects. Authentic/actual data will be used in the teaching of analysing and interpreting quantitative data, both univariate and multivariate data and in terms of descriptive and inferential statistics. Parametric and non-parametric tests will be introduced, for example but not limited to, normality tests (e.g. Kolmogorov-Smirnov), correlations (e.g. Pearson, Spearman), comparing means (e.g. t-tests, ANOVA, Mann-Whitney U, Kruskal-Wallis), regression (e.g. linear regression, logistic regression) and categorical data (e.g. chi-square). Next, students will learn to relate findings of their studies with theoretical framework and conceptual framework. Lastly, students will practice to write findings and discussions for academic papers. As the course progresses, students will be encouraged to apply knowledge and skills learnt on their research projects.

Main Reference

1. Field, A. P. (2018). Discovering statistics using IBM SPSS Statistics. (5th ed.). London: Sage Publications Ltd.

2. Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2015). How to design and evaluate research in education (9th ed.). New York: McGraw Hill, Inc.
3. Guetterman, T.C., Creswell, J.W. (2019). Educational research : Planning, conducting and evaluating quantitative and qualitative research (6th ed.). Essex: Pearson Education Limited.
4. Hair, J.F., Black, W.C., Babin, B.J., & Anderson, R.E. (2019). Multivariate Data Analysis (8th ed). United Kingdom: Cengage Learning.
5. Mills, G.E. , Gay, L.R. (2016). Educational Research: Competencies for analysis and applications (11th ed.). Essex: Pearson Education Limited.
6. Muijs, D. (2011). Doing quantitative research in education with SPSS. (2nd ed.). London: Sage Publications Ltd.

Assessment Weightage

Continuous Assessment: 100%

Final Examination: -

➤ MQE7017: Communication Skills and Workplace-Based Learning (3 credits)

Learning Outcomes

At the end of this course, students are able to:

1. Participate in communication at workplace-based setting including using ICT and technology to communicate.
2. Share the principles of communication in workplace-based setting in an outcome-based education.
3. Write reflections on tasks performed, lessons learned and improvement plans in terms of workplace environment and accreditation purposes.
4. Describe the importance of values and professionalism for communication in workplace-based setting.

Synopsis

All students are encouraged to take this course as to gain workplace experience and to understand the importance of communication skills in workplace. Students will be placed at a selected medical education office/centre/department/unit. In rotations, a student will be attached to an academic and/or administrative officer to observe the routine and specific tasks. Students are required to identify the tasks performed by medical and health professions educators in the workplace and have opportunities to reproduce these tasks whenever applicable. Examples (but not limited to) include curriculum review meetings, blueprinting an assessment, analysing and reporting evaluation of teaching and learning sessions including usage of technology in teaching and learning. Students will document their observations and reflections (i.e., tasks performed, lessons learned and future plans) for their continuing professional development.

Main Reference

1. Dent, A. A., & Harden, R. M. (Eds.) (2013). A practical guide for medical teachers (4th.). China, Elsevier.
2. Hasson. G., & Butler. D., (2020). Mental Health and Wellbeing in the Workplace: A Practical Guide for Employers and Employees. John Wiley & Sons.
3. Kurtz, S., Draper, J., & Silverman, J. (1998). Teaching and Learning Communication Skills in Medicine 2nd Edition. Routledge & CRC Press.
4. Swanwick, T., Forrest, K. & O'Brien, B.C., (2018). Understanding Medical Education: Evidence, Theory, and Practice. John Wiley & Sons.

Assessment Weightage

Continuous Assessment: 100%

Final Examination: -

Master of Medical Education Programme Schedule

Special Semester	<ul style="list-style-type: none"> ▪ A research project of six (6) credits. 	Examination
Semester II	<ul style="list-style-type: none"> ▪ A research project of six (6) credits. ▪ Three (3) core courses, each of three (3) credit hours, totalling nine (9) credits; and ▪ Three (3) elective courses, each of three (3) credits, totalling nine (9) credits. 	(i) End of Semester II
Semester I	<ul style="list-style-type: none"> ▪ Three (3) core courses, each of three (3) credit hours, totalling nine (9) credits and ▪ Three (3) elective courses, each of three (3) credits, totalling nine (9) credits. 	(ii) End of Semester I
		Registration (Admission Evaluation)

Name of Programme : Master of Medical Physics
Mode : By Coursework
Faculty : Faculty of Medicine

1. Classification of Programme

The Master of Medical Physics is a programme by coursework. After completion of the relevant programme of study specified in this Schedule, a candidate shall be eligible for the award of the Master of Medical Physics degree.

2. Entry Requirements

- (1) Bachelor's Degree in physical or engineering sciences with a Cumulative Grade Average (CGPA) of at least 3.00 or its equivalent;
or
- (2) Bachelor's Degree in physical or engineering sciences with a Cumulative Grade Average (CGPA) of at least 2.50 or its equivalent and at least five (5) years of relevant field experience;
or
- (3) Equivalent qualification approved by the Senate from time to time.

Language Requirement

The Non-Malaysian applicant whose degree is from university or institution of higher learning that did not use English as the medium of instruction for that degree shall be required:

Type of English Qualifications		Minimum Score
International English Language Testing (IELTS)		6
Test of English as a Foreign Language (TOEFL)	IBT (Centre based)	60
	IBT Essentials	8.5
Pearson Test of Academic English (PTE)		59
Cambridge English Qualifications and Tests	B1 Preliminary, B2 First, C1 Advanced, C2 Proficiency	169
	Lingua skill Online	169
	Occupational English Test (OET) (Conventional/Online)	250

(i) Duration of Study

- (1) The minimum duration of study shall be two (2) semesters and one (1) special semester
- (2) The maximum duration of study shall be eight (8) semesters.

(ii) Structure of Programme

- (iii) The Master of Medical Physics programme by coursework comprises of forty-two (42) credits namely.

- (a) two (2) core courses, each of four (4) credits, totalling eight (8) credits;
- (b) five (5) core courses, each of three (3) credits, totaling fifteen (15) credits; and;
- (c) two (2) elective courses, each of two (2) credits, totaling four (4) credits; and
- (d) a medical physics research project of fifteen (15) credits.

- (iv) Details of the courses offered are as approved by Senate from time to time on the recommendation of the Faculty and candidates shall be informed of such details at the beginning of each session.

- (3) The lists of courses for the programme of Master of Medical Physics are provided in List 1.

Programme Aim

To produce graduates who are professional and competent based on international standards in the field of medical physics through research, innovation, publication and teaching. (Align with Vision and Mission of UM)

Programme Education Objectives (PEO)	
PEO 1	Graduates capable of performing clinical support procedures that are needed of a medical physicist.
PEO 2	Graduates dedicated to the ethical and professional conduct expected of a medical physicist.
PEO 3	Graduates involved in elevating the professional knowledge of the field of medical physics.

Programme Learning Outcome(s) (PLO)	
PLO1	Master knowledge in the field of medical physics
PLO2	Use practical skills in the field of medical physics
PLO3	Relate ideas to societal issues in the field of medical physics
PLO4	Conduct research in medical physics with minimum supervision and adhere to professional, ethical and legal practice codes
PLO5	Demonstrate leadership qualities in the field of medical physics through communicating and working effectively with colleagues and stakeholders
PLO6	Generate solutions to problems in the field of medical physics by using scientific and critical thinking skills
PLO7	Manage information in the field of medical physics for lifelong learning

List 1

Code	Title	Credits
MQA7001	Research Methodology	3
MQA7003	Anatomy and Physiology	4
MQA7004	Computing and Medical Informatics	3
MQA7005	Applied Radiation Physics and Dosimetry	3
MQA7006	Radiobiology and Radiation Protection	3
MQA7007	Medical Imaging and Nuclear Medicine	4
MQA7008	Radiotherapy Physics	3
MQA7009*	Introduction to Practicum in Medical Imaging	2
MQA7010*	Introduction to Practicum in Nuclear Medicine	2
MQA7011*	Pengenalan kepada Practicum in Radiotherapy	2
MQA7012	Medical Physics Research Project	15
Total		42

* Select 2 of the 3 courses

➤ MQA7001: Research Methodology (3 credits)

Learning Outcomes

At the end of this course, students are able to have:

1. Defend a research proposal.
2. Develop a sound research methodology.
3. Identify the appropriate statistical analysis for different data scale

Synopsis

Knowledge of research planning related to medical physics as well as the necessary statistical methods.

Main Reference

1. Greenhalgh T. How to Read a Paper: The Basics of Evidence-Based Medicine. 5th ed. Wiley: 2014.
2. Dawson B & Trapp RG. Basic and Clinical Biostatistics. 5th ed. McGraw-Hill Medical: 2017.
3. Field A. Discovering Statistics Using IBM SPSS Statistics. 4th ed. SAGE Publications: 2013.
4. Peh WCG & Ng KH. Effective Medical Writing. University of Malaya Press: 2016.
5. University of Malaya Guidelines for the Preparation of Research Reports, Dissertations & Thesis, 2015.

Assessment Weightage

Continuous Assessment: 100%

Final Examination: -

➤ **MQA7012: Medical Physics Research Project (15 credits)**

Learning Outcomes

At the end of this course, students are able to:

1. Implement a substantial research-based project
2. Interpret data and research findings
3. Report research findings in written and verbal forms

Synopsis

A research project in the field of medical physics and related fields.

Main Reference

1. Peh WCG & Ng KH, Effective Medical Writing, University of Malaya Press, 2016.
2. Terrell SR, Writing a Proposal for Your Dissertation: Guidelines and Examples. The Guildford Press: 2016.
3. University of Malaya Guidelines for the Preparation of Research Reports, Dissertations & Theses. 2015.
4. Fisher E & Thomson R. Enjoy Writing Your Science Thesis or Dissertation! 2nd ed. Imperial College Press: 2014.
5. Marder MP, Research Methods for Science. Cambridge University Press: 2014.

Assessment Weightage

Continuous Assessment: 70%

Final Examination: 30%

➤ **MQA7003: Anatomy and Physiology (4 credits)**

Learning Outcomes

At the end of this course, students are able to:

1. Determine the anatomical structures in radiological images.
2. Combine the human anatomy and related physiology functions.
3. Form an effective communication with medical practitioners.

Synopsis

Anatomical and functional knowledge of the human body

Main Reference

1. Weir J, Abrahams PH, et al, Imaging Atlas of Human Anatomy. 5th ed. Elsevier: 2017.
2. Marieb EN, Hoehn K, Human Anatomy & Physiology. 10th ed. Pearson: 2016.
3. Patton KT, Thibodeau GA, Anatomy and Physiology. 9th ed. Elsevier: 2016.
4. Fleckenstein P, Trantum-Jensen J, Anatomy in Diagnostic Imaging. 3rd ed. Wiley-Backwell: 2014.
5. Ryan S, McNicholas M, Eustace S, Anatomy for Diagnostic Imaging. 3rd ed. Elsevier: 2011.

Assessment Weightage

Continuous Assessment: 60%

Final Examination: 40%

➤ **MQA7004: Computing and Medical Informatics (3 credits)**

Learning Outcomes

At the end of this course, students are able to:

1. Identify terminology, organization, representation, and operations of a computer system
2. Identify terminology, organization, protocols and standards used in medical informatics
3. Solve biomedical related problems using computer programming, signal processing, image processing and artificial intelligence techniques.

Synopsis

Computer programming, signal and image processing, medical informatics.

Main Reference

1. Hahn B, Valentine DT, Essential MATLAB for Engineers and Scientists, 6th ed. Academic Press: 2017.
2. Ingle VK, Proakis JG. Digital Signal Processing Using MATLAB, 4th ed. Cengage Learning: 2017.
3. Lubliner DJ, Biomedical Informatics: An Introduction to Information Systems and Software in Medicine and Health. CRC Press. 2016.
4. Shortliffe HE, Cimino JJ (ed.), Biomedical Informatics: Computer Applications in Health Care and Biomedicine, 4th ed. Springer: 2014.
5. Gonzalez RC, Woods RE, Digital Image Processing, 4th ed. Pearson: 2014.

Assessment Weightage

Continuous Assessment: 100%

Final Examination: -

➤ **MQA7005: Applied Radiation Physics and Dosimetry (3 credits)**

Learning Outcomes

At the end of this course, students are able to:

1. Interpret the principles of radiation physics, radioactivity, and interaction of radiation with matter.
2. Integrate the principles, quantities and units of radiation dosimetry.
3. Correlate radiation dose measurement findings to dose for staff or patients in hospitals.

Synopsis

Knowledge of the physical principle behind the use of radiation in the field of diagnostic and therapeutic medicine.

Main Reference

1. Cerritto L, Radiation and Detectors: Introduction to the Physics of Radiation and Detection Devices. Springer: 2017.
2. Attix FH, et al, Fundamentals of Ionizing Radiation Dosimetry, 2nd ed. Wiley: 2017.
3. Podgorsak EB, Radiation Physics for Medical Physicists, 3rd ed. Springer: 2016.
4. Tsoulfanidis N, Landsberger N, Measurement and Detection of Radiation, 4th ed. CRC Press: 2015.
5. DeWerd LA, Kissick M (ed.), The Phantoms of Medical and Health Physics: Devices for Research and Development. Springer: 2014.

Assessment Weightage

Continuous Assessment: 60%
Final Examination: 40%

➤ **MQA7006: Radiobiology and Radiation Protection (3 credits)**

Learning Outcomes

At the end of this course, students are able to:

1. To explain the radiobiological concepts and processes involved in the interaction of ionizing and non-ionizing radiation with living matter.
2. To identify the principles behind various radiation protection recommendations.
3. To practice radiation protection in hospitals..

Synopsis

Knowledge in biological changes and damage due to radiation, applications and practice of radiation protection..

Main Reference

1. Johnson TE, Introduction to Health Physics, 5th ed. McGraw Hill: 2017.
2. Sherer MAS, et al, Radiation Protection in Medical Radiography, 7th ed. Elsevier: 2014.
3. Chang DS, et al., Basic Radiotherapy Physics and Biology. Springer: 2014.
4. Martin JE, Physics for Radiation Protection, 3rd ed. Wiley: 2013.
5. Hall EJ, Giaccia AJ, Radiobiology for the Radiologist, 7th ed. Lippincott Williams & Wilkins: 2012

Assessment Weightage

Continuous Assessment: 60%
Final Examination: 40%

➤ **MQA7007: Medical Imaging and Nuclear Medicine (4 credits)**

Learning Outcomes

At the end of this course, students are able to:

1. Explain the concepts and principles of medical imaging and nuclear medicine.
2. Relate the theoretical basis with the clinical practice of medical imaging and nuclear medicine.
3. Interpret the results of basic quality assurance procedures for the general diagnostic and therapeutic modalities in medical imaging and nuclear medicine.

Synopsis

Provides understanding of radiation and its use in imaging and nuclear medicine related to medical physics.

Main Reference

1. Huda W, Review of Radiologic Physics, 4th ed. Wolsters Kluwer: 2016.
2. DR Dance, S Chritofides, ADA Maidment, ID McLean, KH Ng. Diagnostic Radiology Physics: A Handbook for Teachers and Students. International Atomic Energy Agency: 2014.
3. Pryma DA, Nuclear Medicine: Practical Physics, Artifacts and Pitfalls, Oxford: 2014.
4. Bushberg JT, Seibert JA, Leidholdt EM, Boone JM. The Essential Physics of Medical Imaging. Lippincott Williams & Wilkins: 2012
5. Flower MA (ed.), Webb's Physics of Medical Imaging, CRC Press: 2012.

Assessment Weightage

Continuous Assessment: 60%
Final Examination: 40%

➤ **MQA7008: Radiotherapy Physics (3 credits)**

Learning Outcomes

At the end of this course, students are able to:

1. To apply the basic concepts and principles of radiotherapy physics.
2. To describe the theoretical basis needed for the clinical practice of medical physics in radiotherapy.
3. To discuss the need for and principles of quality control of equipment in radiotherapy..

Synopsis

Provides understanding of radiation and its use in radiotherapy related to medical physics.

Main Reference

1. Pawlicki et al., Hendee's Radiation Therapy Physics, 4th ed. Wiley Blackwell: 2016.
2. Dieterich S, et al., Practical Radiation Oncology Physics. Elsevier: 2016.
3. Khan FM, Gibbons JP, The Physics of Radiation Therapy, 5th ed. Wolters Kluwer: 2014.
4. Sibtain A, et al. (ed.), Physics for Clinical Oncology. Oxford: 2014.
5. Marcu L, Bezak E, Allen B, Biomedical Physics in Radiotherapy for Cancer. 2012

Assessment Weightage

Continuous Assessment: 60%
Final Examination: 40%

➤ **MQA7009: Introduction to Practicum in Medical Imaging (2 credits)**

Learning Outcomes

At the end of this course, students are able to:

1. To identify hazards in workplace that may pose a danger or threat to their safety of health, or that of others.
2. To apply theoretical principles of medical imaging physics into clinical practice.
3. Interpret the results of quality assurance procedures for the medical imaging modalities.

Synopsis

Applications in medical imaging physics, quality assurance for medical imaging and safety in workplace.

Main Reference

1. Huda W, Review of Radiologic Physics, 4th ed. Wolters Kluwer: 2016.
2. IAEA Diagnostic Radiology Physics. A Handbook for Teachers and Students. 2014
3. Analoui M, et al. (ed.), Medical Imaging: Principles and Practices. CRC Press: 2013.
4. Bushberg JT, Seibert JA, Leidholdt EM, Boone JM. The Essential Physics of Medical Imaging. 2012
5. Flower MA, Webb S (ed.). Webb's Physics of Medical Imaging. 2012

Assessment Weightage

Continuous Assessment: 100%
Final Examination: -

➤ **MQA7010: Introduction to Practicum in Nuclear Medicine (2 credits)**

Learning Outcomes

At the end of this course, students are able to:

1. To identify hazards in workplace that may pose a danger or threat to their safety of health, or that of others.
2. To apply theoretical principles of nuclear medicine physics into clinical practice.
3. Interpret the results of quality assurance procedures for the nuclear medicine modalities.

Synopsis

Applications in nuclear medicine physics, quality assurance for nuclear medicine and safety in workplace.

Main Reference

1. Kristen MW, David G. Nuclear medicine and PET/CT: Technology and Techniques. 8th Edition. Elsevier: 2017.
2. Bailey DL, Humm JL, Todd-Pokropek A, van Aswegen A. Nuclear medicine physics: A handbook for teachers and students. International Atomic Energy Agency: 2014.
3. Brahme A (ed.), Comprehensive Biomedical Physics: Vol 1 Nuclear Medicine and Molecular Imaging. Elsevier: 2014.
4. Pryma DA, Nuclear Medicine: Practical Physics, Artifacts and Pitfalls, Oxford: 2014.
5. Cherry SR, Sorenson JA, Phelps ME. Physics in Nuclear Medicine. 4th Edition. Philadelphia: Saunders: 2012.

Assessment Weightage

Continuous Assessment: 100%

Final Examination: -

➤ **MQA7011: Pengenalan kepada Practicum in Radiotherapy (2 credits)**

Learning Outcomes

At the end of this course, students are able to:

1. To identify hazards in workplace that may pose a danger or threat to their safety of health, or that of others.
2. To apply theoretical principles of radiotherapy physics into clinical practice.
3. Interpret the results of quality assurance procedures for the radiotherapy modalities.

Synopsis

Applications in radiotherapy physics, quality assurance for radiotherapy and safety in workplace.

Main Reference

1. Pawlicki et al., Hendee's Radiation Therapy Physics, 4th ed. Wiley Blackwell: 2016.
2. Dieterich S, et al., Practical Radiation Oncology Physics. Elsevier: 2016.
3. Khan FM, Gibbons JP, The Physics of Radiation Therapy, 5th ed. Wolters Kluwer: 2014.
4. Sibtain A, et al. (ed.), Physics for Clinical Oncology. Oxford: 2014.
5. Marcu L, Bezak E, Allen B, Biomedical Physics in Radiotherapy for Cancer. 2012.

Assessment Weightage

Continuous Assessment: 100%
Final Examination: -

**Master of Medical Physics
Programme Schedule**

Special semester	<ul style="list-style-type: none"> ▪ A medical physics research project of eight (8) credits. 	Examination
Semester II	<ul style="list-style-type: none"> ▪ One (1) core course, each of four (4) credits, totalling four (4) credits. ▪ One (1) core course, each of three (3) credits, totalling three (3) credits. 	(v) End of Semester I (vi) End of Semester II
Semester 1	<ul style="list-style-type: none"> ▪ A medical physics research project of seven (7) credits. A candidate may only register for medical physics research project after he has obtained at least ten (10) credits in the core courses; and ▪ Two (2) elective courses, each of two (2) credits, totaling four (4) credits. ▪ four (4) core courses, each of three (3) credits, totalling twelve(12) credits. ▪ One (1) core course, each of four (4) credits 	Registration (Admission Evaluation)

Name of Programme : Master of Nursing Science
Mode : By Coursework
Faculty : Faculty of Medicine

(vii) Classification of Programme

The Master of Nursing Science programme is a coursework programme in which the credits for the research component comprises less than thirty (30) percent of the whole programme of study.

(viii) Entry Requirements

- (1) Bachelor of Nursing Science with CGPA of at least 3.00 or equivalent; or
 - (2) Bachelor of Nursing Science with CGPA of 2.70 to 2.99 or equivalent, AND meet at least one (1) of the following criteria:
 - (ix) Is a graduate of the University of Malaya;
 - (ii) Produce publications in related fields;
 - (x) Scholarship recipients; or
 - (xi) Are employees of government agencies.
- Or
- (3) Bachelor of Nursing Science with CGPA of 2.50 to 2.69 or equivalent, AND meet at least two (2) of the following criteria;
 - (i) Is a graduate of the University of Malaya;
 - (ii) Produce publications in related fields;
 - (xii) Scholarship recipients;
 - (xiii) Are employees of government agencies.
- And
- (4) Registered with the Malaysian Nursing Board AND has a current practice license (for Malaysian Nurses only); and
 - (5) Have a post-basic qualification with a period of study of at least six (6) months; **or** at least one (1) year working experience in a related field.

3. Language Requirement

The Non-Malaysian applicant whose degree is from university or institution of higher learning that did not use English as the medium of instruction for that degree shall be required:

Type of English Qualifications		Minimum Score
International English Language Testing (IELTS)		6
Test of English as a Foreign Language (TOEFL)	IBT (Centre based)	60
	IBT Essentials	8.5
Pearson Test of Academic English (PTE)		59
Cambridge English Qualifications and Tests	B1 Preliminary, B2 First, C1 Advanced, C2 Proficiency	169
	Lingua skill Online	169
	Occupational English Test (OET) (Conventional/Online)	250

3. Duration of Study

Full Time:

- (1) The minimum duration of study shall be two (2) semesters and one (1) special semester
- (2) The maximum duration of study shall be eight (8) semesters.

Part time:

- (1) The minimum duration of study shall be four (4) semesters
- (2) The maximum duration of study shall be twelve (12) semesters.

4. Structure of Programme

- (1) The Master of Nursing Science programme comprises of 42 credits.
- (3) The core courses identified are as follows:
 - (a) Five (5) core courses each of three (3) credits, totalling fifteen (15) credits;
 - (b) Three (3) core courses each of four (4) credits, totalling twelve (12) credits;
 - (c) One (1) out of twelve (12) elective courses each of six (6) credits; and
 - (d) Research project, nine (9) credits.
- (4) Details of the courses offered are as approved by Senate from time to time on the recommendation of the Faculty and candidates shall be informed of such details at the beginning of each session.
- (5) The list of courses for the programme of Master of Nursing Science is provided in List 1.

Programme Aim

To produce expert nurse practitioners who are knowledgeable, competent in clinical and technical aspects, understand social responsibility and function effectively in contributing to the country's healthcare delivery system, and adhere to the principles of nursing ethics and professional conduct.

Programme Education Objectives (PEO)	
PEO 1	Graduates establish themselves as nurses with advanced knowledge and competencies in clinical practice, education and research.
PEO 2	Graduates advance their professional growth in nursing through engagement in continuous professional development.
PEO 3	Graduates contribute to the health and wellbeing of society through the delivery of advanced patient care.

Programme Education Objectives (PEO)	
PLO1	Integrate scientific-based knowledge in assessment, planning, implementation and evaluation of nursing care.
PLO2	Apply scientific knowledge and critical thinking in research and health promotion.
PLO3	Integrate nursing skills in managing patient, family and community holistically.
PLO4	Integrate interpersonal values and communication skills in collaboration of patient care.
PLO5	Integrate information and numeracy technology in reports related to nursing practice and research.
PLO6	Develop leadership skills, autonomy, and responsibility in nursing practice.
PLO7	Engage in activities related to lifelong learning for personal and professional development.
PLO8	Demonstrates professionalism and adherence to code of professional conduct in nursing practice.

List 1

CODE	TITLE	CREDIT
Core Courses		
MQD7013	Research Methodology in Nursing	3
MQD7015	Medical Statistics	3
MQD7016	Advanced Health Assessment	3
MQD7017	Contemporary Nursing	3
MQD7018	Health Promotion	3
MQD7019	Nursing Leadership and Healthcare Management	4
MQD7020	Integrated Clinical Decision Making	4
MQD7021	Clinical Teaching	4
Elective Course (Choose 1 out of 12)		
MQD7022	Advanced Nursing Practice in Gerontology	6
MQD7023	Advanced Nursing Practice in Critical Care*	6
MQD7024	Advanced Nursing Practice in Oncology*	6
MQD7025	Advanced Nursing Practice in Orthopaedic*	6
MQD7026	Advanced Nursing Practice in Emergency and Trauma*	6
MQD7027	Advanced Nursing Practice in Mental Health*	6
MQD7028	Advanced Nursing Practice in Maternal and New born*	6
MQD7029	Advanced Nursing Practice in Paediatric*	6
MQD7030	Advanced Nursing Practice in Neonatal Care*	6
MQD7031	Advanced Nursing Practice in Perioperative*	6
MQD7032	Advanced Nursing Practice in Coronary Care*	6
MQD7033	Advanced Nursing Practice in Renal*	6
Research Project		
MQD7014	Nursing Research Project (Intake 2022/2023)	9
MQD7034	Nursing Research Project (Intake 2023/2024)	9
TOTAL		42

➤ MQD7013: Research Methodology in Nursing

Learning Outcomes

At the end of the course, students are able to:

1. Differentiate research method and its application in nursing.
2. Appraise critically the research process and its findings related to evidence-based nursing practice.
3. Explain appropriate sampling, data collection and analyses methods according to research questions.
4. Produce nursing research proposal in nursing.

Synopsis

In this course, the student will learn the definition of quantitative and qualitative research, literature review, and research method, collection of data and analysis of quantitative and qualitative research reports. This course will provide an overview on the research methodology in nursing. Practical reviews / critical analyses of research studies from international journals will be carried out by students and presentation of their critique as group work. Students are also required to produce a research proposal.

Main Reference

1. Burns N. & Grove, SK (2018) Understanding Nursing Research: Building an evidence based practice. 7th edit. Saunders. USA
2. Moule, P & Jek G (2011) Making sense of research . 4th edit. Learning matters .Sage
3. Polit, D.F., & Beck, C.T. (2017) Essentials Of Nursing Research Methods, Appraisal evidence for nursing practice. 9th Edit. Philadelphia, Lippincott
4. Plichta, S.B. & Garson, L.S. (2013) Statistic for Nursing and Allied Health Lippincott . Philadelphia
5. Williamson G.R & Whittaker A. (2011) Succeeding in research project plans and literature reviews for nursing students. Learning Matters. Great Britain

Assessment Methods

Continuous Assessment: 50%

Final Examination: 50%

➤ MQD7014: Nursing Research Project

Learning Outcomes

At the end of this course, the students are able to:

1. Adhere to the research ethics and guidelines set in carrying out the project.
2. Produce research project paper based on the principle of research process.
3. Defend the findings of research.
4. Produce manuscript for publication.

Synopsis

In this course, students are required to carry out a research study. This research can be conducted in one of the nursing fields chosen by the students, namely clinical, educational or management. Students are encouraged to conduct research that will benefit the nursing services. Research results will be written in a project paper and required to present.

Main Reference

1. Creswell, J.W. (2018) Research Design: Qualitative, Quantitative and Mixed Methods Approaches. 8th edition. Sage. Thousand Oaks.
2. Burns N. & Grove, SK (2018) Understanding Nursing Research: Building an evidence based practice. 7th edit. Saunders. USA

3. Polit, D.F., & Beck, C.T. (2017) Essentials Of Nursing Research Methods, Appraisal evidence for nursing practice. 9th Edit. Philadelphia, Lippincott.
4. Parahoo, K (2014) nursing research: [principles, process and issues. 3rd edit New York. Macmillan.
5. Watson, R., McKenna, H., Cowman, S. & Keady, J. (2008) Nursing research: Designs and Methods. Edinburgh. Livingstone.

Assessment Method

Continuous Assessment: 100%

➤ MQD7015: Medical Statistics

Learning Outcomes

At the end of the course, the students are able to:

1. Illustrate the concepts and theories applicable in the descriptive and inferential statistics.
2. Perform appropriate statistical methods and interpretation of results to answer research questions and study objectives.
3. Interpret study findings and conclusion appropriately and critically.

Synopsis

This course provides knowledge and skills in the application of parametric and nonparametric statistical methods to the study design and analysis of data.

Students will perform descriptive and inferential data analysis using a statistical software and be critical of the way results are presented.

Elements of probability, power analysis, basic of instrument psychometrics, hypothesis testing, parameter estimation and statistical methods are some of the topics covered to guide students performing univariate, bivariate and multivariate analysis that are commonly employed in nursing research.

Main Reference

1. Creswell, J.W. (2018) Research Design: Qualitative, Quantitative and Mixed Methods Approaches. 5th edition. Sage. Thousand Oaks.
2. Burns N. & Grove, SK (2018) Understanding Nursing Research: Building an evidence based practice. 7th edit. Saunders. USA
3. Polit, D.F., & Beck, C.T. (2017) Essentials Of Nursing Research Methods, Appraisal evidence for nursing practice. 9th Edit. Philadelphia, Lippincott.
4. Parahoo, K (2014) Nursing research: [principles, process and issues. 3rd edit New York. Macmillan.
5. Watson, R., McKenna, H., Cowman, S. & Keady, J. (2008) Nursing research: Designs and Methods. Edinburgh. Livingstone.

Assessment Method

Continuous Assessment: 50%

Final Examination: 50%

➤ MQD7016: Advanced Health Assessment

Learning Outcomes

At the end of this course, students are able to:

1. Determine a conceptual framework for conducting the nursing assessment.
2. Discuss the holistic assessment of health on patients in stages in life.
3. Integrate data from individual history and physical.

Synopsis

The course will discuss functions of health framework and nursing diagnoses. The health assessment process presented will be based on nursing objectives which will focus on data collection and analysis related to the individual's capabilities, physical status, actual and potential responses to the health problems. Student will be emphasized on competency in assessing, recognising and managing multiple variables within patient care.

Main Reference

1. Carpenito, L. (2012) Handbook of Nursing Diagnosis 14th Ed. Lippincott. Philadelphia.
2. Carpenito, L. (2012) Nursing diagnosis: application to Clinical practice 14th ed., Lippincott. Philadelphia.
3. Jensen, S. (2010) Nursing health assessment; a best practice approach Lippincott Williams & Wilkins
4. Jarvis C (2015) Physical examination and health assessment. 7th ed Philadelphia. Saunders
5. Fuller, J. & Schaller-Ayers (2000) Health Assessment: A Nursing Approach 3rd Ed. Lippincott. Philadelphia, New York & Baltimore.

Assessment Methods

Continuous Assessment: 50%

Final Examination: 50%

➤ MQD7017: Contemporary Nursing

Learning Outcomes

At the end of this course, students are able to:

1. Identify current issues, trends and their influences in nursing education, clinical practice, research and health care.
2. Explain the need for self-development and continuous professional practice based on current knowledge and issues in the field of nursing.
3. Propose strategies to address issues related to ethics, socio-cultural, technology and professional behaviour in nursing education, nursing practices and healthcare.

Synopsis

This course will discuss on nursing issues / trends which are emergent in nursing and healthcare. As health care services become complex and costly, this course aims to focus on challenges in the current roles, functions and status of nursing in the context of surrounding changes in the health care system. Building on the knowledge and experience of students, this course will discuss issues in healthcare in education, practice, research, social, ethics, technology and economics. Critical comments / analysis on related issues will be conducted through individual / group work, students will make written reports and presentations. Students will be exposed to the importance of critical thinking, clinical reasoning, decision making and evaluation.

Main Reference

1. Cherry, B. & Jacob, R. S. (2018). E-book: Contemporary Nursing (8th edition). Mosby: Elsevier Health Sciences
2. Burkhardt, M.A. & Alvita, K. N. (2014). Ethics and Issues in Contemporary Nursing (4th ed.). Australia: Delmar Cengage Learning.
3. Catalano, J.T. (2015). Today's Issues, Tomorrow's Trends (7th ed.). New York: F.A. Davis Company.
4. Ellis, J.R. & Hartley, C.L. (2012). Nursing in today's world: trends, issues & management (10th ed.). Philadelphia: Wolters Kluwer Health/Lippincott Williams & Wilkins, 2012.
5. Hood, L.J. (2014). Leddy & Pepper's conceptual bases of professional nursing (8th ed.). Philadelphia: Wolters Kluwer Health /Lippincott Williams & Wilkins.
6. Marquis, B.L., & Huston, C.J. (2015). Leadership roles and management functions in nursing (8th ed.). Philadelphia: Lippincott.

7. Weiss, S.A. & Tappen R.M. (2015). Essentials of nursing leadership and management (6th ed.). Philadelphia, PA: F.A. Davis Company.

Assessment Methods

Continuous Assessment: 50%

Final Examination: 50%

➤ **MQD7018: Health Promotion**

Learning Outcomes

At the end of this course, students will be able to:

1. Explain concept, models and theories of health promotion and epidemiology.
2. Explain strategies and policy related to health promotion and epidemiology.
3. Perform health promotion activities.

Synopsis

Health promotion is now a central force in the new public health movement in Malaysia and it's considered as essential aspect of the work of all health care professionals. This course is intended to introduce the student to a wide range of concerns on the theory and practice of health promotion. Relevant sociological, ethical, political, psychological and economic issues will be discussed. It will give the student the opportunity to consider broad issues in health promotion as well as nurse's role.

Main Reference

1. Altman, D.G. (2006). Practical statistics for medical research (2nd ed.). Chapman and Hall: London
2. Bernard, R. (2005). Fundamentals of biostatistics (6th ed.). Thomson Learning: Duxbury
3. Leech, N.L., Barrett, K.C. & Morgan, G.A. (2011). IBM SPSS for intermediate statistics: use and interpretation (4th ed). Routledge: New York
4. Morgan, G.A., Leech, N.L., Gloeckner, G.N., & Barrett, K.C. (2013). IBM SPSS for Introductory statistics: use and interpretation (5th ed). Routledge: New York.
5. Plichta, S.B. & Kelvian, E. (2013). Munro's statistical methods for healthcare research (6th ed.). Lippincott Williams & Wilkins: Philadelphia

Assessment Methods

Continuous Assessment: 50%

Final Examination: 50%

➤ **MQD7019: Nursing Leadership and Healthcare Management**

Learning Outcomes

At the end of this course, student is able to:

1. Analyze the elements of organizational structure and environment, and managerial and leadership role of the professional nurse in various healthcare settings.
2. Explain the process involved in fiscal management, complex system management and regulations of healthcare service.
3. Describe the components of human resource management, and concepts of quality and safety management.
4. Integrate leadership principles, healthcare policy and regulatory guidelines, and evidence based strategies in determining solution for issues related to patient care/ management and/ employment.

Synopsis

This course will provide opportunities for the students to further develop knowledge and understanding on the concept and principles of nursing leadership and health care management. The content will cover

topics related to most relevant management and leadership theories, healthcare organization, human resource management, fiscal management, health regulation and safety management which will assist the students in understanding the role of professional nurse leaders in regard to patient care, staffing, budgeting, quality improvement, workplace safety and other issues. Additionally, the content also includes current issues and trends in nursing leadership and management and strategies to address those issues. Integration of evidence-based findings, group work, critical thinking and decision-making skills will be emphasised.

Main Reference

1. Ellis, P. & Bach, S. (2015). Leadership, management & team working in nursing (2nd ed.). London, UK: Saga Publication Ltd.
2. Huber, D.L. & Joseph, M.L. (2022). Leadership and Nursing Care Management - E-Book (7th ed.). Elsevier: St. Louis, Missouri.
https://books.google.com.my/books?id=jilvEAAQBAJ&printsec=frontcover&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false
3. Kelly, P. (2012). Nursing Leadership and Management (3rd ed.). China: Cengage Learning.
4. Marquis, B.L. & Huston, C.J. (2012). Leadership roles and management functions in nursing (7th ed.). Philadelphia: Lippincott
5. Yoder-Wise, P.S. (2014). Leading and managing in nursing (6th ed.). St Louis, US: Elsevier-Health Sciences Division.

Assessment Methods

Continuous Assessment: 50%

Final Examination: 50%

➤ MQD7020: Integrated Clinical Decision Making

Learning Outcomes

At the end of this course, students are able to:

1. Relates the critical thinking, and reflective skills and its strategies in the application to nursing practices.
2. Integrate the decision making and problem-solving process in the patient care management.
3. Explain the patient case management using clinical pathway concept and its application to nursing practice.

Synopsis

This course is conducted to equip the student with in-depth knowledge and understanding about clinical pathway, critical thinking and its influences, reflective practice, ability in decision making and problem solving process in the delivery of nursing care. This course also will assist student to develop a patient case management using a clinical pathway on specific disease and condition according to specialty.

Main Reference

1. Alfaro-LeFevre, R (2020). Critical Thinking, Clinical Reasoning, and Clinical Judgement: A Practical Approach. (7^{ed.}) Elsevier. St.Louis.
2. Harding, M.M, Snyder, J.S., & Preusser, B.A. (2016). Winningham's Critical Thinking Cases in Nursing : Medical-Surgical, Pediatric, Maternity, and Psychiatric. (6th ed.). Elsevier: St.Louis.
3. Jasper, M., Rosser, M., & Mooney, G. (2013). Professional Development, Reflection and Decision-Making in Nursing and Health Care (2nd ed.). John Wiley & Sons Ltd: Oxford.
4. Poirrier, G.P., & Oberleitner, M.G. (1998). Clinical Pathways in Nursing: A Guide to Managing Care from Hospital to Home. Spring House:
5. Walsh, M. (1997). Models and Critical Pathways in Clinical Nursing: Conceptual Frameworks for Care Planning. (2nd Ed.). Bailliere Tindall:

Assessment Methods

Continuous Assessment: 50%

Final Examination: 50%

MQD7021: Clinical Teaching

Learning Outcomes

At the end of this course, students are able to:

1. Explain the preparation and implementation of various teaching strategies in clinical areas.
2. Implement a clinical teaching session according to prepared lesson plans.
3. Discuss the selection of clinical evaluation method in measuring.

Synopsis

This course introduces students to teaching in the clinical area. Major topics include clinical teaching strategies, models of clinical teaching, learning cycle, and evaluation for clinical teaching and learning. The student is also required to conduct a clinical teaching based on the prepared lesson plan.

Main Reference

1. Billings, D.M. & Judith A. Halstead. J.A. (2016). Teaching in nursing: a guide for faculty (5th ed.), St. Louis, Mo.: Elsevier/Saunders.
2. Gaberson, K. B. & Oermann, M. H. (2014). Evaluation and Testing in Nursing Education: (4th ed.). New York: Springer Publishing.
3. Gaberson, K. B., Oermann, M. H. & Shellenbarger, T. (2015). Clinical Teaching Strategies in Nursing (4th ed.). New York: Springer Publishing.
4. Gardner, M & Supplee, P.D. (2010) Handbook Of Clinical Teaching In Nursing And Health Sciences Sudbury, Mass.: Jones and Bartlett Publishers.

Assessment Methods

Continuous Assessment: 50%

Final Examination: 50%

➤ MQD7022: Advanced Nursing Practice in Gerontology

Learning Outcomes

At the end of this course, students are able to:

1. Display competency in health teaching and decision-making related to patient care management critically and ethically.
2. Demonstrate advanced nursing skills and competencies in gerontological nursing.
3. Integrate interpersonal skills and effective communication in gerontological nursing.
4. Display leadership skill, professional responsibilities and autonomy in the planning and management of advanced patient care.

Synopsis

The course provides opportunities for students to integrate advanced clinical knowledge and competence in gerontological nursing. Fundamental to this course is to develop students' potential for an advanced nurse practitioner.

Main Reference

1. Chang, Amanda Johnson, E. (2016). Caring for Older People in Australia: Principles for Nursing Practice. Wiley Global Education Australia,

2. Witham, Josephine Tetley; Nigel Cox; Kirsten Jack; G. (2018) Nursing Older People at a Glance. Wiley Global Research (STMS).
3. nWilson, Claire G. Nicholl; K. J. (2012).Elderly Care Medicine. Wiley Professional, Reference & Trade (Wiley K&L).

Assessment Methods

Continuous Assessment: 100%

➤ MQD7023: Advanced Nursing Practice in Critical Care

Learning Outcomes

At the end of this course, students are able to:

At the end of the course, students are able to:

1. Display competency in health teaching and decision-making related to patient care management critically and ethically.
2. Demonstrate advanced nursing skills and competencies in critical care.
3. Integrate interpersonal and effective communication skills in critical care.
4. Display leadership skills, professional responsibilities and autonomy in the planning and management of advanced patient care.

Synopsis

The course provides opportunities for students to integrate advanced clinical knowledge and competency in critical care. Fundamental to this course is to develop students' potential for an advanced nurse practitioner.

Main Reference

1. Lillyman, S., & Merriex, P.(2014) Portfolios and reflective practice:Routledge.
2. Bulman, C., & Schutz, S.(2013). Reflective practice in nursing (5th ed.). West Sussex, UK: Wiley-Blackwell.
3. Holly, M.L. (2002). Keeping a professional journal (2nd ed.). Sydney, Australia: UNSW Press.
4. Johns, C., (2013). Becoming a reflective practitioner (4th ed.). Oxford, UK: Blackwell Science.
5. Taylor, B., (2010). Reflective practice for health care professionals: A practical guide (3rd ed.). England:Open University Press; McGraw Hill.

Assessment Methods

Continuous Assessment: 100%

➤ MQD7024: Advanced Nursing Practice in Oncology

Learning Outcomes

At the end of the course, students are able to:

1. Display competency in health teaching and decision-making related to patient care management critically and ethically.
2. Demonstrate advanced nursing skills and competencies in oncology nursing.
3. Integrate interpersonal skills and effective communication in oncology nursing.
4. Display leadership skill, professional responsibilities and autonomy in the planning and management of advanced patient care.

Synopsis

The course provides opportunities for students to integrate advanced clinical knowledge and competence in oncology nursing. Fundamental to this course is to develop students' potential for an advanced nurse practitioner.

Main Reference

1. The American Cancer Society (2018). The American Cancer Society's Oncology in Practice: Clinical Management. Wiley Blackwell:USA.
2. Lister, S., Dougherty, L., McNamara, L. (2018). The Royal Marsden Manual of Cancer Nursing Procedures (10th ed). Wiley-Blackwell:USA
3. Yarbro, C.H., Wujcik, D., Gobel, B.H. (2018). Cancer Nursing: Principles and Practice (8th ed). John & Bartlett: Pittsburgh.
4. Langhorne, M., Fulton, J., & Otto, S.E. (2021). Oncology Nursing (5th ed). Elsevier: New York.
5. Yarbro, C.H., Wujcik, D., & Gobel, B.H. (2014). Cancer Symptom Management (4th ed). Jones & Bartlett Learning: Burlington

Assessment Methods

Continuous Assessment: 100%

➤ MQD7025: Advanced Nursing Practice in Orthopedic

Learning Outcomes

At the end of the course, students are able to:

1. Display competency in health teaching and decision-making related to patient care management critically and ethically.
2. Demonstrate advanced nursing skills and competencies in orthopedic nursing.
3. Integrate interpersonal skills and effective communication in orthopedic nursing.
4. Display leadership skill, professional responsibilities and autonomy in the planning and management of advanced patient care.

Synopsis

The course provides opportunities for students to integrate advanced clinical knowledge and competence in orthopedic nursing. Fundamental to this course is to develop students' potential for an advanced nurse practitioner.

Main Reference

1. Clarke, S., & Santy-Tomlinson, J. (2014). Orthopaedic and Trauma Nursing: An Evidence-Based Approach to Musculoskeletal Care. Wiley-Blackwell:Oxford.
2. Jester, R., Santy, J., & Rogers, J. (2011). Oxford Handbook of Orthopaedic and Trauma Nursing (2nd ed). Oxford University Press
3. Willmott, H. (2016). Trauma and Orthopaedics (1st ed). John Wiley & Sons Ltd:USA.
4. Sugand, K., & Gupte, C.M. (2018). ABC of Orthopaedics and Trauma (1st ed). John Wiley & Sons Ltd: USA
5. Lasanianos, N.G., Kanakaris, N.K., & Giannoudis, P.V. (2015). Trauma and Orthopaedic Classifications: A Comprehensive Overview. Springer: London

Assessment Methods

Continuous Assessment: 100%

➤ MQD7026: Advanced Nursing Practice in Emergency and Trauma

Learning Outcomes

At the end of the course, students are able to:

1. Display competency in health teaching and decision-making related to patient care management critically and ethically.
2. Demonstrate advanced nursing skills and competencies in emergency and trauma nursing.
3. Integrate interpersonal skills and effective communication in emergency and trauma

4. Display leadership skill, professional responsibilities and autonomy in the planning and management of advanced patient care.

Synopsis

The course provides opportunities for students to integrate advanced clinical knowledge and competence in emergency and trauma nursing. Fundamental to this course is to develop students' potential for an advanced nurse practitioner.

Main Reference

1. Curtis, K., Ramsden, C., Shaban, R.Z., Fry, M., Considine, J. (2019). Emergency and Trauma Care for Nurses and Paramedics. (3rd ed). Elsevier Health Sciences.
2. Jauch, A., & Tscheslog, B.A. (2014). Emergency Nursing made Incredibly Easy. (2nd .ed). Lippincott : Wolters Kluwer.
3. Lippincott's Q & A certification review : emergency nursing (2nd ed)(2013). Philadelphia : Wolters Kluwer/Lippincott Williams and Wilkin
4. Hammond, B.B, & Zimmermann, P.G. (2012). Sheehy's Manual Emergency Care.(7th . ed) St.Louis,Mosby:Elsevier Australia

Assessment Methods

Continuous Assessment: 100%

➤ MQD7027: Advanced Nursing Practice in Mental Health

Learning Outcomes

At the end of the course, students are able to:

1. Display competency in health teaching and decision-making related to patient care management critically and ethically.
2. Demonstrate advanced nursing skills and competencies in mental health nursing.
3. Integrate interpersonal skills and effective communication in mental health nursing.
4. Display leadership skill, professional responsibilities and autonomy in the planning and management of advanced patient care.

Synopsis

The course provides opportunities for students to integrate advanced clinical knowledge and competence in mental health nursing. Fundamental to this course is to develop students' potential for an advanced nurse practitioner.

Main Reference

1. Stuart, G.I W. & Laraia M.T. (2005) Principles and practice of psychiatric nursing (8th ed.).St. Louis : Elsevier Mosby
2. Callaghan,P.&Gamble, C.(2015) Oxford Handbook of Mental Health Nursing UK: Oxford University Press
3. Foster,K.,Marks,P., O'Brien,A., Raeburn,T.(2020)Mental Health in Nursing (5th ed.)Theory and Practice for Clinical Settings Elsevier Health Sciences.
4. Elder,R., Evans,K., Nizette,D., Trenoweth,S.(2013). Mental Health Nursing (1st Edition)A Manual for Practice.Churchill Livingstone.

Assessment Methods

Continuous Assessment: 100%

➤ **MQD7028: Advanced Nursing Practice in Maternal and Newborn**

Learning Outcomes

At the end of the course, students are able to:

1. Display competency in health teaching and decision-making related to patient care management critically and ethically.
2. Demonstrate advanced nursing skills and competencies in maternal and newborn nursing.
3. Integrate interpersonal skills and effective communication in maternal and newborn nursing.
4. Display leadership skill, professional responsibilities and autonomy in the planning and management of advanced patient care.

Synopsis

The course provides opportunities for students to integrate advanced clinical knowledge and competence in maternal and newborn nursing. Fundamental to this course is to develop students' potential for an advanced nurse practitioner.

Main Reference

1. Hanley, Jane. Perinatal Mental Health. Wiley Professional, Reference & Trade (Wiley K&L), 2013. [VitalSource Bookshelf]. Witham, Josephine Tetley; Nigel Cox; Kirsten Jack; G. Nursing Older People at a Glance. Wiley Global Research (STMS), 2018. [VitalSource Bookshelf].
2. Roberts, Mary Steen; T. The Handbook of Midwifery Research. Wiley Professional, Reference & Trade (Wiley K&L), 2011. [VitalSource Bookshelf].
3. Downe, Denis Walsh; S. Intrapartum Care: Intrapartum Care. Wiley Professional, Reference & Trade (Wiley K&L), 2013. [VitalSource Bookshelf].
4. Downe, Denis Walsh; S. Intrapartum Care: Intrapartum Care. Wiley Professional, Reference & Trade (Wiley K&L), 2013. [VitalSource Bookshelf].

Assessment Methods

Continuous Assessment: 100%

➤ **MQD7029: Advanced Nursing Practice in Pediatric**

Learning Outcomes

At the end of the course, students are able to:

1. Display competency in health teaching and decision-making related to patient care management critically and ethically.
2. Demonstrate advanced nursing skills and competencies in pediatric nursing.
3. Integrate interpersonal skills and effective communication in pediatric nursing.
4. Display leadership skill, professional responsibilities and autonomy in the planning and management of advanced patient care.

Synopsis

The course provides opportunities for students to integrate advanced clinical knowledge and competence in pediatric nursing. Fundamental to this course is to develop students' potential for an advanced nurse practitioner.

Main Reference

1. Linnard-Palmer, L. (2019). Pediatric Nursing Care: A Concept-Based Approach. Burlington: Jones & Bartlett Learning.
2. Hockenberry, M. J. (2014). Wong's Essentials of Pediatric Nursing (9th ed.). St. Louis : Mosby.
3. Beevi, A. (2019). Concise Text Book for Pediatric Nursing (2nd ed.). New Dehli: Elsevier.

4. McGee, P. & Inman, C. (2019). Advanced Practice in Healthcare: Dynamic Developments in Nursing and Allied Health Professions (4th ed.). Oxford: Wiley Blackwell.

Assessment Methods

Continuous Assessment: 100%

➤ **MQD7030: Advanced Nursing Practice in Neonatal Care**

Learning Outcomes

At the end of the course, students are able to:

1. Display competency in health teaching and decision-making related to patient care management critically and ethically.
2. Demonstrate advanced nursing skills and competencies in neonatal care.
3. Integrate interpersonal skills and effective communication in neonatal care.
4. Display leadership skill, professional responsibilities and autonomy in the planning and management of advanced patient care.

Synopsis

The course provides opportunities for students to integrate advanced clinical knowledge and competence in neonatal care. Fundamental to this course is to develop students' potential for an advanced nurse practitioner.

Main Reference

1. Blackburn, S. (2018). Maternal, Fetal, & Neonatal Physiology: A Clinical Perspective. (5th Ed). Saunders. eBook ISBN:9780323473934
2. Kenner, C., Altimier, L.B., & Boykova, M.V. (2019). Comprehensive Neonatal Nursing Care (6th Ed). Springer Publishing Company. (eBook) 978-0-8261-3914-6
3. Bellini, S., & Beaulieu, M.J. (2016). Neonatal Advanced Practice Nursing: A Case-based Learning Approach. Springer Publishing Company.

Assessment Methods

Continuous Assessment: 100%

➤ **MQD7031: Advanced Nursing Practice in Perioperative**

Learning Outcomes

At the end of the course, students are able to:

1. Display competency in health teaching and decision-making related to patient care management critically and ethically.
2. Demonstrate advanced nursing skills and competencies in perioperative nursing.
3. Integrate interpersonal skills and effective communication in perioperative nursing.
4. Display leadership skill, professional responsibilities and autonomy in the planning and management of advanced patient care.

Synopsis

The course provides opportunities for students to integrate advanced clinical knowledge and competence in perioperative nursing. Fundamental to this course is to develop students' potential for an advanced nurse practitioner.

Main Reference

1. Goodman, T. & Spry C. (2017). Essential of Perioperative Nursing (6th ed.) Jones & Bartlett Learning.
2. Philips N (2016). Berry & Kohn's Operating Room Technique. (13th ed). Mosby Elsevier
3. Wicker P. (2015). Perioperative Practice at a Glance. Wiley-Blackwell.
4. Shields L. (2010). Perioperative of the child: A Nursing Manual. Wiley-Blackwell.
5. Suzanne J. Hughes & Andy Mardell (2009). Oxford Handbook of Perioperative Practice. Oxford University Press.

Assessment Methods

Continuous Assessment: 100%

➤ MQD7032: Advanced Nursing Practice in Coronary Care

Learning Outcomes

At the end of the course, students are able to:

1. Display competency in health teaching and decision-making related to patient care management critically and ethically.
2. Demonstrate advanced nursing skills and competencies in coronary care.
3. Integrate interpersonal skills and effective communication in coronary care.
4. Display leadership skill, professional responsibilities and autonomy in the planning and management of advanced patient care.

Synopsis

The course provides opportunities for students to integrate advanced clinical knowledge and competence in perioperative nursing. Fundamental to this course is to develop students' potential for an advanced nurse practitioner.

Main Reference

1. Menzies-Gow, E. & Spiers, C. (2018). Rapid Cardiac Care. Hoboken, NJ: Wiley. [VitalSource Bookshelf]. Retrieved from <https://bookshelf.vitalsource.com/#/books/9781119220343/>
2. Kucia, A. & Quinn. T. (2013). Acute Cardiac Care: A Practical Guide For Nurses [VitalSource Bookshelf]. New York: Wiley-Blackwell. Retrieved from <https://bookshelf.vitalsource.com/#/books/9781118702321/>
3. Dean S.G., Siegert, R.J. & Taylor W.J. (2012). Interprofessional Rehabilitation: A Person-Centred Approach. UK: Wiley-Blackwell [VitalSource Bookshelf]. Retrieved from <https://bookshelf.vitalsource.com/#/books/9781118351413/>

Assessment Methods

Continuous Assessment: 100%

➤ MQD7033: Advanced Nursing Practice in Renal

Learning Outcomes

At the end of the course, students are able to:

1. Display competency in health teaching and decision-making related to patient care management critically and ethically.
2. Demonstrate advanced nursing skills and competencies in renal nursing.
3. Integrate interpersonal skills and effective communication in renal nursing.

4. Display leadership skill, professional responsibilities and autonomy in the planning and management of advanced patient care.

Synopsis

The course provides opportunities for students to integrate advanced clinical knowledge and competence in renal nursing. Fundamental to this course is to develop students' potential for an advanced nurse practitioner.

Main Reference

1. Daugirdas, J.T., Blake, P.G. & Ing, T.S. (2015). Handbook of Dialysis.(5th ed). United States: A Lippincott Williams & Wilkins.
2. Hooi, L.S., Lily Mushahar, Ong, L.M., Ravindran, V. & Wong, H.S. (2017). Clinical Practice Guidelines Renal Replacement Therapy. Ed. ke - 4. Malaysia:
3. Post Graduate Renal Society of Malaysia.
4. Kallenbach, J.Z.(2016). Review of Hemodialysis for Nurses and Dialysis Personnel. Ed.9. United States of America: Elsevier.
5. Lerma, E.V., Sparks, M.A. & Topf, J.M. (2019). Nephrology Secrets. (4th.ed).Philadelphia: Elsevier.
6. Thomas, N. (2014). Renal Nursing. Ed. ke-4. United Kingdom: Wiley Blackwell.

Assessment Methods

Continuous Assessment: 100%

➤ MQD7034: Nursing Research Project

Learning Outcomes

At the end of this course, the students are able to:

1. Adhere to the research ethics and guidelines set in carrying out the project.
2. Produce research project paper based on the principle of research process.
3. Defend the findings of research.
4. Produce manuscript for publication.

Synopsis

In this course, students are required to carry out a research study. This research can be conducted in one of the nursing fields chosen by the students, namely clinical, educational or management. Students are encouraged to conduct research that will benefit the nursing services. Research results will be written in a project paper and required to present.

Main Reference

1. Creswell, J.W. (2018) Research Design: Qualitative, Quantitative and Mixed Methods Approaches. 8th edition. Sage. Thousand Oaks.
2. Burns N. & Grove, SK (2018) Understanding Nursing Research: Building an evidence based practice. 7th edit. Saunders. USA
3. Polit, D.F., & Beck, C.T.(2017) Essentials Of Nursing Research Methods, Appraisal evidence for nursing practice. 9th Edit. Philadelphia, Lippincott.
4. Parahoo, K (2014) nursing research: [principles, process and issues. 3rd edit New York. Macmillan.
5. Watson, R., McKenna, H., Cowman, S. & Keady, J.(2008) Nursing research: Designs and Methods. Edinburgh. Livingstone.

Assessment Method

Continuous Assessment: 100%

Master of Nursing Science Programme Schedule

F U L L T I M E	Year1 Semester I	<ul style="list-style-type: none"> ▪ Two (2) core courses each of four (4) credits. ▪ Four (4) core course of three (3) credits. 	Admission
	Year 1 Semester II	<ul style="list-style-type: none"> ▪ One (1) core course each of four (4) credits. ▪ One (1) core course each of three (3) credits. ▪ One (1) elective course of six (6) credits. ▪ 	End of Semester I Examination
	Year 1 Special Semester	<ul style="list-style-type: none"> ▪ Nursing Research Project of nine (9) credits 	End of Semester II Examination
			End of Special Semester Examination
			Graduation

P A R T T I M E	Year 1 Semester I	<ul style="list-style-type: none"> ▪ Two (2) core courses each of four (4) credits. ▪ One (1) core course of three (3) credits. 	Admission
	Year 1 Semester II	<ul style="list-style-type: none"> ▪ One (1) core course each of four (4) credits. ▪ One (1) core course each of three (3) credits. ▪ One (1) elective course of six (6) credits. ▪ 	End of Semester I Examination
	Year 2 Semester III	<ul style="list-style-type: none"> ▪ Three (3) core courses each of three (3) credits. 	End of Semester II Examination
	Year 2 Semester IV	<ul style="list-style-type: none"> ▪ Nursing Research Project of nine (9) credits. 	End of Semester III Examination
			End of Semester IV Examination
			Graduation

Name of Programme : Master of Public Health
Mode : Coursework
Faculty : Faculty of Medicine

1. Classification of Programme

The Master of Public Health programme is a coursework programme in which the credits for the research component comprises less than thirty (30) percent of the whole programme of study. After completion of the relevant programme of study specified in this Schedule, a candidate shall be eligible for the award of the Master of Public Health degree.

2. Entry Requirements

- (1) The degrees of Bachelor of Medicine and Bachelor of Surgery of the University or an equivalent medical qualification approved by the Senate;
or
- (2) The degree of Bachelor of Dental Surgery;
or
- (3) The degrees of Bachelor of Allied Health with a CGPA of at least 3.00;
or
- (4) A Bachelor's degree with a CGPA of at least 3.00 in a relevant discipline;
or
- (5) At least one year of relevant work experience in clinical or health;
and
- (6) At least one (1) years working experience in the relevant field after graduation;
or
- (7) The degrees of Bachelor of Allied Health with a CGPA of 2.5 TO 2.99;
or
- (8) A Bachelor's degree with a CGPA 2.5 to 2.99 in a relevant discipline;
and
- (9) At least two (2) years of work experience in the relevant field after graduation;
and
- (10) Pass the interview;
or
- (11) The degrees of Bachelor of Allied Health with a CGPA of 2.0 TO 2.49;
or
- (12) A Bachelor's degree with a CGPA 2.0 to 2.49 in a relevant discipline;
and
- (13) At least five (5) years of work experience in the relevant field after graduation;
and
- (14) Pass the interview.

Language Requirement

The Non-Malaysian applicant whose degree is from university or institution of higher learning that did not use English as the medium of instruction for that degree shall be required:

Type of English Qualifications		Minimum Score
International English Language Testing (IELTS)		6
Test of English as a Foreign Language (TOEFL)	IBT (Centre based)	60
	IBT Essentials	8.5
Pearson Test of Academic English (PTE)		59
Cambridge English Qualifications and Tests	B1 Preliminary, B2 First, C1 Advanced, C2 Proficiency	169
	Lingua skill Online	169
	Occupational English Test (OET) (Conventional/Online)	250

3. Duration of Study

- (1) The minimum duration of study shall be two (2) semesters and one (1) special semester
- (2) The maximum duration of study shall be eight (8) semesters.

4. Structure of Programme

- (1) The Master of Public Health programme comprises forty (42) credits namely:
 - (1) Four (4) core courses each of three (3) credits, totalling twelve (12) credits;
 - (2) Five (5) specialisation courses each of three (3) credits; totalling fifteen (15) credits;
 - (3) Three (3) elective courses each of two (2) credits, totalling six (6) credits;
 - (4) Research Project totalling nine (9) credits.
- (2) Details of the courses offered are as approved by Senate from time to time on the recommendation of the Faculty and candidates shall be informed of such details at the beginning of each session.
- (3) The list of courses for the programme of Master of Public Health is provided in List 1.

Programme Aim

This programme aims to produce graduates who have knowledge, ability for critical thinking and highly skilled in various aspects related to public health including research.

Programme Education Objectives (PEO)	
PEO 1	Graduates establish themselves as public health practitioners
PEO 2	Graduates contribute to research, policy development and planning and implementation of public health programmes
PEO 3	Graduates engage in lifelong pursuit of knowledge sharing and learning

Programme Learning Outcome(s) (PLO)	
PLO1	Apply public health knowledge in mitigating risk to population health
PLO2	Incorporate cultural, social, behavioural and biological differences in the practice of public health
PLO3	Apply public health approaches in assessing population health
PLO4	Exhibit competent communication skills and ability to work in teams
PLO5	Solve public health problems using quantitative skills
PLO6	Demonstrate leadership, autonomy and responsibility in the practice of public health
PLO7	Inculcate life-long learning in managing public health problems
PLO8	Apply legal, ethical and professional codes of practice in public health

List 1

CORE COURSES		
Code	Course Title	Credits
MQB7001	Research Method	3
MQB7005	Principles and Methods of Epidemiology	3
MQB7047	Principles of Management in Health	3
MQB7049	Principles of Biostatistics	3
	TOTAL	12
SPECIALIZATION COURSES		
Code	Course Title	Credits
MQB7003	Principles of Family Health	3
MQB7004	Society, Behaviour and Health	3
MQB7034	Environmental Health	3
MQB7041	Occupational Health	3
MQB7042	Global Health	3
	TOTAL	15
ELECTIVE COURSES (6 credits – select any 3)		
Code	Course Title	Credits
MQB7012	Producing Better Evidence	2
MQB7014	Health Economics	2
MQB7025	Health Promotion	2
MQB7026	Public Health Nutrition	2
MQB7027	Qualitative Inquiry in Public Health	2
MQB7030	Comparative Health System	2
MQB7033	Social Health Determinants	2
MQB7036	Occupational Medicine	2

MQB7038	Clinical Occupational Medicine	2
MQB7039	Global Health Leadership	2
MQB7040	Nutritional Epidemiology	2
MQB7043	Ethics, Law and Health	2
MQB7044	Data Management in Public Health	2
MQB7045	Essentials of Data Science in Public Health	2
MQB7046	Modelling Public Health Data	2
MQB7048	Medical Surveillance and Fitness to Work	2
MQB7051	Implementation Science	2
	TOTAL	6
RESEARCH PROJECT		
Code	Course Title	Credits
MQB7052	Research Project	9
	TOTAL	9
	OVERALL	42

CORE & SPECIALISATION COURSES

➤ MQB7001: Research Method (3 Credits)

Learning Outcomes

At the end of the course, the candidate is able to:

1. Apply appropriate study designs and methodology for a selected research question
2. Apply critical thinking to solve public health problems

Synopsis

The students will be introduced to the steps involved in the research process. Critical appraisal on scientific articles produced by other researchers will provide 'hands on' experience for students to understand the methodological issues in the conduct of studies. With the above mentioned knowledge, students will be able to increase their expertise in appraising scientific articles and producing research proposals in a scientific manner.

Main References

1. Gordis, Leon. Epidemiology 6th edition. Publisher: W.B. Saunders, 2019.
2. Schimel J: Writing science: how to write papers that get cited and proposals that get funded. New York: Oxford University Press; 2012. ISBN: 9780199760237.
3. Toto R, McPhaul M. Clinical Research: From Proposal to Implementation: Lippincott Williams & Wilkins; 2010.
4. Guyatt G, Eikelboom JW, Akl EA, Crowther M, Gutterman D, Kahn SR, Schunemann H, Hirsh J. A guide to GRADE guidelines for the readers of JTH. J Thromb Haemost. 2013 Aug;11(8):1603-8. Doi: 10.1111/jth.12320. PMID: 23773710.
5. Guyatt GH, Oxman AD, Sultan S, et al. GRADE guidelines: 9. Rating up the quality of evidence. J Clin Epidemiol. 2011;64(12):1311-6. Doi: 10.1016/j.jclinepi.2011.06.004.

Assessment Methods

Continuous assessment: 100%

Final Examination: -

➤ **MQB7052: Research Project (9 Credits)**

Learning Outcomes

At the end of the course, the candidate is able to:

1. Apply appropriate research methods to answer Public Health problem
2. Manage Public Health problem with effective solution
3. Apply Public Health professionalism in research

Synopsis

The course takes the candidate through the steps of research process and provides the candidate a hands-on experience to develop a research proposal, carry out the research, analyse the data and write up the report.

Pre-Requisite

Candidate had passed MQB7001 Research Method course

Main References

1. Gordis, Leon. Epidemiology 6th edition. Publisher: W.B. Saunders, 2019.
2. Stewart A. Basic Statistics and Epidemiology: A Practical Guide: Radcliffe Publishing; 2010.
3. Schimel J: Writing science: how to write papers that get cited and proposals that get funded. New York: Oxford University Press; 2012. ISBN: 9780199760237.

Assessment Methods

Continuous assessment: 100%

Final Examination: -

Note: To be registered in 2 semesters (Semester 2 + Special Semester or Semester 1 + Semester 2)

➤ **MQB7003: Principles of Family Health (3 Credits)**

Learning Outcomes

At the end of the course, the candidate is able to:

1. Elaborate the concepts and principles of family health in promoting the health of the community.
2. Analyse health disparities through the lens of social determinants of family health.
3. Develop solutions in addressing public health issues taking into consideration age and gender.

Synopsis

This course is an introduction to the principles of Family Health. The course will cover basic programmes of reproductive health such as safe motherhood and high-risk approach in MCH care. It will also include child survival and development strategies and common conditions seen in mothers and children. Nutrition topics and wellness promotion programmes will also be covered.

Main References

1. Gera T, Shah D, Garner P, Richardson M, Sachdev HS. Integrated management of childhood illness (IMCI) strategy for children under five. Cochrane Library, 2016.
2. Mc Gowan, Kayla. Thirty years of the Safe Motherhood Initiative: Celebrating progress and charting the way forward. MHTM (Maternal Health Task Force), August 24, 2019.
3. Hodin, Sarah. The legacy of the Alma-Ata Declaration: Integrating maternal, newborn and child health into Primary Care. MHTF (Maternal Health Task Force), 2019.
4. WHO MiNDbank. More inclusiveness needed in disability and development: A database of resources covering mental health, substance abuse, disability, general health, human rights and development. WHO (World Health Organization), 2021.
5. United Nations. "Gender Equality": Global Issues, August 24, 2019.

Assessment Methods

Continuous assessment: 50%.

Final examination: 50%

➤ MQB7004: Society, Behaviour and Health (3 Credits)

Learning Outcomes

At the end of the course, the candidate is able to:

1. Demonstrate the understanding of social structure on health behaviour.
2. Relate behavioural models to contemporary public health issues.
3. Formulate solutions to public health issues taking into consideration behavioural trends in the society.

Synopsis

This course is designed to provide an overview of the influence of social and behavioural in preventing disease and promoting better health outcomes. Students will be provided with depth understanding of the social structure including institutions, socialization, social control, abnormal behavior (deviance) and stigma in analysing determinants of health. Theoretical frameworks that draw on major health behaviour theories will provide a better understanding of how individuals, families, peers, schools, neighborhoods, policies and the larger community shape health. The course will promote intellectual and collaborative learning through course lectures, readings, class discussions, and individual and group work.

Main References

1. Barkan, Steven E. Health, illness, and society: An introduction to medical sociology. Rowman & Littlefield Publishers, 2020
2. Holtz, T.H., Holmes, S., Stonington, S. and Eisenberg, L., 2006. Health is still social: contemporary examples in the age of the genome. PloS Med, 3(10), p.e419.
3. Gabe, Jonathan, and Lee Monaghan. Key concepts in medical sociology. Sage, 2013.
4. Glanz, K., Rimer, B.K., & Viswanath, K. (2015). Health Behavior – Theory, Research and Practice (Fifth Edition). San Francisco: Jossey-Bass.
5. Thorogood, M., & Coombes, Y. (2010). Evaluating Health Promotion Practice and Methods (Third Edition). Oxford University Press.

Assessment Methods

Continuous assessment: 60%

Final examination: 40%

➤ MQB7005: Principles and Methods of Epidemiology (3 Credits)

Learning Outcomes

At the end of this course, the candidate is able to:

1. Apply the epidemiological concepts to explain disease occurrence and transmission.
2. Apply the principles of prevention and control to manage health problems.
3. Demonstrate ability to calculate measures of association using appropriate study designs.

Synopsis

This course introduces candidates to the principles and methods of epidemiology which will form the basis to other courses in epidemiology. This course also demonstrates the applications of epidemiologic principles and methods.

Main Reference

1. Goldis L, Epidemiology: Elsevier/Sanders. 6th Edition; 2019.
2. Penny Webb, Bain Chris, Prozzo Sandi. Essential Epidemiology: An Introduction for Students and Health Professionals. Cambridge University Press. 2018. ISBN13 9781107529151
3. Rothman, Kenneth. Modern Epidemiology. 3rd edition. Lippincott Williams & Wilkins, 2013. ISBN13: 9781451190052

Assessment Methods

Continuous assessment: 50%

Final examination: 50%

➤ MQB7034: Environmental Health (3 credits)

Learning Outcomes

At the end of the course, the candidate is able to:

1. Describe environmental health issues in the community.
2. Evaluate environmental health issues in the community.
3. Formulate interventions to address environmental health issues in the community.

Synopsis

This course is an overview of the environmental health issues in the local and global perspective, addressing the current and future issues. The course covers core topics that prepare students to understand and address environmental health issues; air pollution; water pollution; housing environments and health impact assessment.

Main References

1. Handbook of Environmental Health, Volume II: Pollutant Interactions in Air, Water, and Soil 4th Edition, Herman Koren , Michael S. Bisesi , CRC Press , 2016
2. Energy and Civilization : A History, Vaclav Smil, MIT Press Ltd, 2018,
3. Climate Change and Air Pollution, The Impact on Human Health in Developed and Developing Countries Editors: Akhtar, Rais, Palagiano, Cosimo (Eds.), Springer , 2021
4. How to Avoid a Climate Disaster: The Solutions We Have and the Breakthroughs We Need, Bill Gates, Penguin Books Ltd, 2021,
5. Climate Change and Global, Second Edition , Public Health, Kent E. Pinkerton, William N. Rom, (Editors), Humana Press 2021
6. Urban Heat Island (UHI) Mitigation , Hot and Humid Region Enteria, Napoleon A., Santamouris, Matteos, Eicker, Ursula (Eds.) Springer 2021

Assessment Methods

Continuous assessment: 50%

Final examination: 50%

➤ MQB7041: Occupational Health (3 Credits)

Learning Outcomes

At the end of the course, the candidate is able to:

1. Describe health issues in the workplace.
2. Relate health risk and issues in the workplace to workers, workplace and community.
3. Formulate intervention to address occupational health issue in the workplace.

Synopsis

This course is an overview of the occupational health issues in the local and global perspective. The course covers core topics that prepare students to understand and address occupational health issues; toxicology; exposure assessment; risk assessment, occupational disease and disability, accident and safety at work.

Main References

1. Occupational and Environmental Health (7th ed.) Oxford University Press, 2017
2. Current Occupational and Environmental Medicine 5th ed. LaDou, Joseph, Harrison, Robert, New York: McGraw-Hill, 2014
3. Occupational Safety and Health Act 1994 and Regulations. Laws of Malaysia. International Law Book Services 2007

Assessment Methods

Continuous assessment: 60%

Final examination: 40%

➤ MQB7042: Global Health (3 Credits)

Learning Outcomes

At the end of the course, the candidate is able to:

1. Describe the concepts and theoretical perspectives in global health.
2. Describe the governance of global health including the key institutions involved.

3. Apply understanding of concepts, theory and governance to analysis of current and emerging issues in global health.

Synopsis

This course is designed to increase student understanding of current and emerging transnational issues in population health through application of concepts and theories and through an understanding of the governing structure of global health. Topics include health impact of global climate changes, trade liberalisations and increased population mobility.

Main References

1. Global Health 101 (Essentials Public Health); Richard Skolnik; Jones and Bartlett, USA; 2015
2. Comparative Health System: Global Perspectives; James A. Johnson; Carleen Stoskopf; Wiley 2011.
3. Global Health Care: Issues and Policies (Holtz, Global Health Care); Carol Holtz, 2012
4. Introduction to Global Health; Kathryn H. Jacobsen; Jones and Bartlett, USA; 2013
5. Labonte, R., Schrecker, T., Packer, C. & Runnels, V. (eds). Globalisation and Health. Pathways, Evidence and Policy. New York: Routledge. 2010.

Assessment Methods

Continuous assessment: 100%

Final examination: -

➤ MQB7047: Principles of Management in Health (3 Credits)

Learning Outcomes

At the end of the course, the candidate is able to:

1. Apply the concepts on management in healthcare programmes.
2. Analyse health management practise based on individual and group experiences.

Synopsis

This course is designed to expose the student the basic principles of Management and its application to the Health Services delivery. It will also expose issues in management as applicable to Primary Health Care and Hospitals.

Main References

1. Gopee N., Galloway J. Leadership and Management in Healthcare Sage Publications Ltd. London, 2nd Edition, 2014.
2. Michelle A. Green and Mary Jo Bowie Essentials of Health Information Management: Principles and Practices; 3rd Edition, Cengage Learning, USA, 2016
3. Ghani S.N., Yadav H, Health care in Malaysia. Univ. Of Malaya Press, Kuala Lumpur, 2008.
4. Yadav, H. Hospital Management. Univ. Of Malaya Press, Kuala Lumpur, 2006
Malaysian institute of Management, Management in Malaysia, 2008.

Assessment Methods

Continuous assessment: 50%

Final Examination: 50%

➤ **MQB7049: Principles of Biostatistics (3 Credits)**

Learning Outcomes

At the end of the course, the candidate is able to:

1. Describe principles of statistics in public health.
2. Apply the appropriate statistical techniques for health data.
3. Interpret the results of statistical analysis performed for health data.

Synopsis

This module will cover basic statistical techniques that are important for analyzing data arising from public health research. Major topics include descriptive statistics, elements of probability, introduction to estimation and hypothesis testing, nonparametric methods, analytical techniques for categorical data, regression analysis, analysis of variance, and elements of study design. The concept and applications of statistical methods are stressed. At the end of the module, the candidate will also have the knowledge of the need for non-parametric statistical techniques as alternatives to parametric methods; acquired skills in their practical implementation and have an understanding of the underlying theory.

Main References

1. Neil A. Weiss. Introductory Statistics, 10th Edition, Pearson International Edition, 2016.
2. Bernard Rosner. Fundamentals of Biostatistics. 8th Edition. Duxbury Thomson Learning. 2016.
3. Chap T. Le, Lynn E. Eberly, Introductory Biostatistics. 2nd Edition. Wiley, 2016.
4. K.V.S. Sarma, R. Vishnu Vardhan, Multivariate statistics made simple: a practical approach, CRC Press, Taylor & Francis Group, 2019.
5. Julien I E Hoffman. Biostatistics for Medical and Biomedical Practitioners. 2nd edition. Academic Press. 2019.

Assessment Methods

Continuous assessment: 60%
Final Examination: 40%

ELECTIVE COURSES

➤ **MQB7012: Producing Better Evidence (2 Credits)**

Learning Outcomes

At the end of the course, the candidate is able to:

1. Formulate a search strategy in relation to a specific problem statement.
2. Conduct systematic review that is relevance to a specific health problem.
3. Conduct meta-analysis.

Synopsis

The objective of this module is to train student on producing valid scientific evidence which can be used to modify policy or management standards. It contains the following:

Introduction to Evidence-based Practice, performing systematic search, critically appraising the literature / evidence, and performing meta-analysis. Systematic reviews and meta-analyses produce the highest hierarchy of evidence should be used to inform clinical decision-making and health care policy. The principles of meta-analytic statistical methods are reviewed, and the application of these to data sets is explored. Application of methods includes considerations for clinical trials and observational

studies. The use of meta-analysis to explore data and identify sources of variation among studies is emphasized, as is the use of meta-analysis to identify future research questions.

Main References

1. Sharon Straus Paul Glasziou W. Scott Richardson R. Brian Haynes. Evidence-Based Medicine 5th Edition: How to Practice and Teach EBM. Elsevier 2019.
2. Carl Heneghan, Douglas Badenoch. Evidence-Based Medicine Toolkit, 2nd Edition. BMJ Books, 2006.
3. Trisha Greenhalgh. How to Read a Paper: The Basics of Evidence-based Medicine and Healthcare, 6th Edition. Wiley-Blackwell 2019.
4. Books L. Systematic Review: Meta-Analysis, Publication Bias, Systematic Review, Secondary Data, Thomas C. Chalmers, Cochrane Library, Funnel Plot: General Books LLC; 2010
5. Julian Higgins, James Thomas (editors). Cochrane Handbook for Systematic Reviews of Interventions Version 6.0. The Cochrane Collaboration, 2019.

Assessment Methods

Continuous assessment: 100%

Final examination: -

➤ MQB7014: Health Economics (2 Credits)

Learning Outcomes

At the end of the course, the candidate is able to:

1. Describe the economic concepts to the evaluation of performance of a health care system.
2. Describe economic evaluation tools to solve the problem of allocation in health services resources.
3. Evaluate national healthcare financing systems.

Synopsis

This course is designed to introduce students to the aims, concepts, theories and methods of economic analysis as well as to give an appreciation of how these methods are being applied to problems of resource allocation, management, evaluation and planning in health services.

Main References

1. Baumol W J, Blinder A S, Solow J L. 2020. Microeconomics. Principles and Policy. 14th Edition. Cengage.
2. Drummond MF, Sculpher MJ, Torrance GW, O'Brien B, Stoddart GL, 2015. Methods for the Economic Evaluation of Health Care Programmes. 4th Edition. Oxford. Oxford University Press.
3. Folland S, Goodman A, Stano M. 2017. The Economics of Health and Health Care. 8th Edition. Routledge.
4. Roberts MJ, Hsiao W, Berman P, Reich MR. 2008. Getting health reform right. New York: Oxford University Press.

Assessment Methods

Continuous assessment: 50%

Final examination: 50%

➤ **MQB7025: Health Promotion (2 Credits)**

Learning Outcomes

At the end of the course, the candidate is able to:

1. Describe key philosophies, theories, models and concepts used in health promotion.
2. Apply appropriate models in delivering information on positive health behaviours.
3. Demonstrate the ability to plan health promotion interventions.

Synopsis

This course will cover in depth the various models of health behaviour and health communication. Health promotion methods and approaches discussed include detailed planning, needs assessment; implementation and evaluation of health promotion programs.

Main References

1. L. Kay Bartholomew et al. 2016. Planning Health Promotion Programs: An Intervention Mapping Approach. 4th ed. Jossey-Bass.
2. Margaret Thorogood & Yolande Coombes. 2010. Evaluating Health Promotion: Practice and Methods. Oxford University Press.
3. Green et al. 2019. Health Promotion: Planning and Strategies 4th Edition.
4. SAGE Publications. Anne-Marie Barry, Chris Yuill. 2012. Understanding the Sociology of Health. 3rd ed. SAGE Publications Ltd.
5. Graham Scambler. 2018. Sociology as Applied to Health and Medicine (7th edition). MacMillan Education, Palgrave.

Assessment Methods

Continuous assessment: 100%

Final examination: -

➤ **MQB7026: Public Health Nutrition (2 Credits)**

Learning Outcomes

At the end of the course, the candidate is able to:

1. Evaluate methods of nutritional assessment for all age groups.
2. Analyse the importance of nutrition in health promotion and disease prevention.
3. Propose appropriate strategies to improve community nutrition programmes.

Synopsis

The course will focus on the nutrition related problems throughout the life cycle, various methods of nutritional assessments, public health nutrition approach in health promotion and primary prevention of diseases as well as community programs in nutrition carried out in the country. Current nutritional issues affecting health will also be discussed.

Main References

1. Judith E. Brown, Janet S. Isaacs, U. Beate Krinke. 2013. Nutrition through the Life Cycle. 5th ed. Thomson Learning.
2. Judith L Buttriss et al (2017) Public Health Nutrition, 2nd Edition. (ISBN: 978-1-118-66097-3) Wiley- Blackwell

3. Walter Willett 2013. Nutritional Epidemiology. 3rd ed. Oxford University Press.

Assessment Methods

Continuous assessment: 50%,

Final examination: 50%

➤ **MQB7027: Qualitative Inquiry in Public Health (2 Credits)**

Learning Outcomes

At the end of the course, the candidate is able to:

1. Critically appraise qualitative research.
2. Perform interview in qualitative study.
3. Perform qualitative data analysis.

Synopsis

This unit is mainly concerned with the development of capacities and skills in using a range of qualitative research techniques in public health. It is expected that the students will be familiar with the theoretical foundations of qualitative research and common methods of data collection, sampling techniques, validity, ethical issues, and data analysis. The unit also seeks to enhance students' knowledge and skills to critically assess qualitative research by the end of the course.

Main References

1. Carol R. Bailey. A Guide to Qualitative Field Research (3rd ed.) SAGE Publications; 2017 ISBN: 9781506306988
2. Sharlene Hesse Biber. The Practice of Qualitative Research: Engaging Students in the Research Process. SAGE Publications Inc. 2016. ISBN10 1452268088
3. Howard Lune, Bruce Berg. Qualitative Research Methods for the Social Sciences, Global Edition. Pearson Education Limited, 2017. ISBN10 1292164395
4. Laura M. O'Dwyer & James A. Bernauer. Quantitative Research for Qualitative Researcher. SAGE Publication, Inc. 2016 DOI:<http://dx.doi.org/10.4135/9781506335674>

Assessment Methods

Continuous assessment: 100%

Final examination: -

➤ **MQB7030: Comparative Health System (2 Credits)**

Learning Outcomes

At the end of the course, the candidate is able to:

1. Describe the framework, staffs and services of different health system.
2. Identify the challenges of health care delivery to achieve universal coverage.
3. Evaluation of different component of health system.

Synopsis

This course provides the knowledge and assessment of health system.

Main References

1. Comparative Health System: Global Perspectives (2ed.); James A. Johnson; Carleen Stoskopf; Jones & Bartlett Learning 2018.
2. Global Health System: Comparing Strategies for Delivering Health Services; Margie Lovett-Scott and Faith Prather; Michael Brown Publisher; 2012.
3. Lucy Gilson (ed.) (2012) Health Policy and Systems Research: A Methodology Reader. Alliance for Health Policy and Systems Research, WHO.
4. Bodenheimer T, & Grumbach K (2005) Understanding Health Policy. A Clinical Approach. The McGraw – Hill Companies, USA

Assessment Methods

Continuous assessment: 100%

Final examination: -

➤ MQB7033: Social Determinants of Health (2 Credits)

Learning Outcomes

At the end of the course, the candidate is able to:

1. Describe social determinants of health and how each can impact health outcomes.
2. Examine pathways through which social determinants operate in different population groups.
3. Critique existing policy responses and structural interventions to promote health or reduce health inequalities.

Synopsis

Social epidemiology is the study of the distribution of health outcomes and their social determinants that contribute to or detract from the health of individuals and communities. This course will provide an overview of the social determinants of health which operate at different stages of the life course and in different population groups. Policy responses and interventions to promote health or reduce health inequality will also be introduced. The course also includes methodology and tools used in social epidemiology and health equity research.

Main References

1. Social Determinants of Health: A Comparative Approach; Alan Davidson; Oxford University Press; 2015
2. Social Causes of Health and Diseases; William Cockerham; Polity Press, University of London; 2nd edition; 2013
3. Lee JH, Sadana R.(ed). World Health Organization. 2011. Improving equity in health by addressing social determinants.
4. Religion as a Social Determinant of Public Health; Ellen L. Idler; Oxford University Press; 2014.
5. LGBT Health: meeting the needs of gender and sexual minorities; Smalley and Warren; Springer Publishing Company; 2017.
6. Solar O, Irwin A. A conceptual framework for action on the social determinants of health. Social Determinants of Health Discussion Paper 2 (Policy and Practice) 2010, World Health Organization

Assessment Methods

Continuous assessment: 100%

➤ **MQB7036: Occupational Medicine (2 Credits)**

Learning Outcomes

At the end of the course, the candidate is able to:

1. Describe the signs and symptoms of work-related diseases.
2. Describe the clinical and workplace investigations for work-related diseases.
3. Determine the work-related diseases based on clinical and workplace investigation findings.
4. Formulate a management plan for the work-related disease based on the investigation findings and exposure information.

Synopsis

This course will provide the student with the basic to intermediate knowledge of diseases related to workplace exposure, diagnosis and management of work aggravated and occupational diseases, and an introduction to the principle of occupational toxicology. It will also cover the principle of methods and modalities used in the establishment of those diseases in the workplace and community.

Main References

1. Textbook of Occupational Medicine Practice 4th Edition, David Koh, Aw Tar Ching. Singapore. World Scientific: 2018
2. Current occupational & environmental medicine 5th ed. LaDou, Joseph, Robert Harrison New York : McGraw-Hill, 2014.
3. ABC of occupational & environmental medicine; David Snashall, Dipti Patel; 3rd Edition, Wiley-Blackwell. 2013
4. ABC of Occupational and Environmental Medicine 2nd ed. Snashall, David. London: BMJ Books, 2003.
5. Practical Occupational Medicine 2nd ed. Agius, Raymond M. New York: Hodder Arnold, 2006.
6. Occupational Safety and Health Act 1994 and Regulations. Laws of Malaysia. International Law Book Services 2007
7. Occupational Health: Pocket Consultant 5th Edition 2008, Aw, Gardner T. Harrington. Blackwell Science

Assessment Methods

Continuous assessment: 100%

➤ **MQB7038: Clinical Occupational Medicine (2 credits)**

Learning Outcomes

At the end of the course, the candidate is able to:

1. Identify the signs and symptoms of work-related diseases in patients.
2. Diagnose work-related diseases in patients.
3. Prescribe the appropriate clinical and workplace management plan for work-related diseases based on the patients' fitness level.

Synopsis

This course will provide the student with the practical experience in the clinic on basic to intermediate knowledge of diseases related to workplace exposure, diagnosis and management of work aggravated and occupational diseases, including relevant workplace assessment.

Main References

1. Current occupational & environmental medicine 5th ed. LaDou, Joseph, Robert Harrison New York : McGraw-Hill, 2014.
2. Textbook of Occupational Medicine Practice: 4th ed. David Koh, Tar-Ching Aw. World Scientific Publishing Co Pte Ltd, 2017.
3. Fitness for Work – the Medical Aspects 5th ed. Keith Palmer, Robin Cox, John Hobson. Oxford 2013.
4. Occupational Safety and Health Act 1994 and Regulations. Laws of Malaysia. International Law Book Services 2007

Assessment Methods

Continuous assessment: 100%

➤ MQB7039: Global Health Leadership (2 credits)

Learning Outcomes

At the end of the course, the candidate is able to:

1. Explain the key trends and issues in the management of global health agencies and organisations.
2. Explain the key challenges in developing health programs in resource-constrained settings.
3. Determine critical traits that contribute to successful global health leadership from the example of current and past leaders that exhibit these qualities.

Synopsis

This course introduces students to the practice of leadership in global health. Students will learn how leaders have overcome challenges faced in the operationalisation of complex global health interventions, foreign policy, and working with key stakeholders and organisation in this context. They will be exposed to real-world cases in global health leadership.

Main References

1. Emotional Intelligence 2.0 by Travis Bradberry & Jean Greaves (2009)
2. Global Health Leadership: Case Studies from the Asia-Pacific by Mellissa Withers and Judith McCool (2019)

Assessment Methods

Continuous assessment: 100%

➤ MQB7040: Nutritional Epidemiology (2 credits)

Learning Outcomes

At the end of the course, the candidate is able to:

1. Explain the strengths and limitations of different methods of dietary assessment.
2. Determine statistical methods commonly used in nutritional epidemiology to analyse diet-disease associations.
3. Explain the current state of epidemiological evidence for relationships of diet to the development of selected diseases.

Synopsis

This course is designed for candidates who are interested in better understanding and interpreting epidemiologic studies on the associations of diet and diseases. This course examines study designs, dietary assessment and statistical methods used in nutritional epidemiology, as well as to review the current evidence on diet and selected diseases.

Main References

1. Willett W. Nutritional epidemiology: Oxford University Press; 2013
2. Goldis L, Epidemiology: Elsevier/Sanders. 6th Edition; 2019.
3. Buttris JL et al. 2017. Public Health Nutrition. 2nd Ed. John Wiley & Sons.

Assessment Methods

Continuous assessment: 50%

Final Examination: 50%

MQB7043: Ethics, Law and Health (2 credits)

Learning Outcomes

At the end of the course, the candidate is able to:

1. Describe the principles that underpin ethics in research, medicine and public health.
2. Determine ethical issues that arise in research, medicine and public health.
3. Apply ethical principles and public health laws in implementing public health programmes.

Synopsis

This course is designed to provide the candidate with the basic knowledge of ethical and legal issues related to research, medical and public health practice. It will explore current issues in research, medical, public health ethics, Doctor – Patient relationship and Public Health Law.

Main References

1. Helga Kuhse, Udfo Schuklenk, Peter Singer eds. Bioethics: An Anthology, 3rd Edition, Wiley Blackwell, 2017.
2. Lewis Vaughn. Bioethics: Principles, Issues and Cases, 3rd Edition, Oxford University Press. 2017
3. Puteri, NJK. Law and Ethics Relating to Medical Profession. International Law Book Services, Petaling Jaya, 2007.
4. Puteri, NJK. Medical Negligence Law in Malaysia. International Law Book Services, Petaling Jaya, 2003.

Assessment Methods

Continuous assessment: 50%

Final Examination: 50%

➤ MQB7044: Data Management in Public Health (2 credits)

Learning Outcomes

At the end of the course, the candidate is able to:

1. Critically discuss data management concepts and various data management tasks throughout the research data lifecycle.

2. Create data management plan based on principles and best practices of data management.
3. Expand data management and analysis skills in research project.

Synopsis

This module is an introductory course to research data management. Students will learn about the diversity of data and their management needs across the research data lifecycle; components of good data management plans; best practices for working with data including the organization, documentation, and storage and security of data. Students will also understand the importance of archiving and sharing data as well as how to assess the trustworthiness of repositories. Critical concepts of data management principles and practical methods to support planning, collection, storage, and dissemination of data in clinical research will be taught. The module will use a combination of practical lessons, short quizzes, and hands-on exercises to help students develop their skills. After completing this module, students will develop a strong working knowledge and skill set in data management principles and practice and better equipped to manage data throughout the entire research data lifecycle from project planning to the project completion, including how data could be shared effectively and made available in a trustworthy repository.

Main References

1. Zozus, M. The Data Book: Collection and Management of Research Data (1st Edition). 2017. Chapman and Hall/CRC.
2. Briney, K. Data Management for Researchers: Organize, maintain and share your data for research success (Research Skills). 2015. Pelagic Publishing.
3. Data Observation Network for Earth. https://www.dataone.org/software-tools/tags/data_management_plan

Assessment Methods

Continuous assessment: 100%

Final examination: -

➤ MQB7045: Essentials of Data Science in Public Health (2 Credits)

Learning Outcomes

At the end of the course, the candidate is able to:

1. Describe key concepts, tools and techniques involved in data science
2. Develop essential skills in data analytics techniques
3. Utilise data analytics techniques for analysis of different health scenarios

Synopsis

This module covers basic of data science techniques for analysing health data particularly in public health research. Major topics that will be emphasized include health data source and system, ethics in data science, and data analytics techniques using R. Application, translation as well as communication of model from data analytics techniques are stressed. At the end of the module, the candidate will have the knowledge and skills in handling health data using data science approaches.

Main References

1. Moreira, João, André Carlos Ponce de Leon Ferreira, and Tomáš Horváth. A general introduction to data analytics. Wiley, 2019.
2. Shah, C. (2020). A Hands-On Introduction to Data Science. Cambridge University Press.
3. Consoli, S., Recupero, D. R., & Petkovic, M. (2019). Data Science for Healthcare. Springer International Publishing.
4. Bahga, A., & Madiseti, V. (2016). Big data science & analytics: A hands-on approach. VPT.
5. Hadley Wickham & Garrett Grolemund. R for data science. O'Reilly. 2017.

Assessment Methods

Continuous assessment: 100%

➤ MQB7046: Modelling Public Health Data (2 credits)

Learning Outcomes

At the end of the course, the candidate is able to:

1. Describe different types of modelling for analysis of public health data.
2. Perform advanced statistical analysis for analysing various public health data.
3. Interpret results of modelling for public health data.

Synopsis

This module provides a comprehensive overview of different types of modelling for public health data and application of these models in solving public health issues. The course focuses on the theory behind modelling methods, formulation, interpretation and validation of models. A variety of modelling methods are introduced which include developing a model, handling missing data, general linear models, generalised linear models, mixed models, structural equation modelling, mediation and moderation analysis. Applications of statistical methods will be emphasized.

Main References

1. Chen, D. G. (2015). Innovative Statistical Methods for Public Health Data. J. Wilson (Ed.). Springer.
2. Leyland, A. H., & Groenewegen, P. P. (2020). Multilevel modelling for public health and health services research: health in context. Springer Nature.
3. Hair Jr, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2016). A primer on partial least squares structural equation modeling (PLS-SEM). Sage publications.
4. Byrne, B. M. (2010). Structural equation modeling with AMOS Basic concepts, applications, and programming (Multivariate Applications Series).
5. Hayes, A. F. (2017). Introduction to mediation, moderation, and conditional process analysis: A regression-based approach. Guilford publications.

Assessment Methods

Continuous assessment: 100%

➤ MQB7048: Medical Surveillance and Fitness for Work (2 credits)

Learning Outcomes

At the end of the course, students are able to:

1. identify the appropriate tests used in medical surveillance.
2. draw conclusions from the medical surveillance results.
3. conduct workplace fitness evaluation.
4. propose appropriate workplace recommendations based on medical surveillance results.

Synopsis

The course focus on the three component of health risk assessment; which is risk assessment, risk management and risk communication. It will include overview on methods and modalities for qualitative and quantitative risk assessment in the workplace. The courses will stress on the assessment of health risk related to exposure to chemicals, physical, biological, ergonomics and psychosocial hazards.

Main References

1. Textbook of Occupational Medicine Practice 4th Edition, David Koh, Aw Tar Ching. Singapore. World Scientific: 2018
2. Current occupational & environmental medicine 5th ed. LaDou, Joseph, Robert Harrison New York: McGraw-Hill, 2014.
3. ABC of occupational & environmental medicine; David Snashall, Dipti Patel; 3rd Edition, Wiley-Blackwell. 2013
4. Guidelines on Medical Surveillance. Department of Occupational Safety and Health, Malaysia, 2001.
5. Practical Occupational Medicine 2nd ed. Agius, Raymond M. New York : Hodder Arnold, 2006.
6. Occupational Safety and Health Act 1994 and Regulations. Laws of Malaysia. International Law Book Services 2007

Assessment Methods

Continuous assessment: 100%

➤ MQB7051: Implementation Science (2 credits)

Learning Outcomes

At the end of the course, the candidate is able to:

1. Identify key factors that limit the translation of high-quality evidence into effective health programs.
2. Apply appropriate research and evaluation methods to facilitate implementation of interventions.
3. Develop an implementation strategy to address a specific health problem.

Synopsis

Implementation science is the scientific study of the use of strategies to adopt and integrate evidence-based health interventions into clinical and community settings.

Implementation science seeks to accelerate the integration of research into everyday healthcare and public health settings. Closing the gap between research discovery and its application to health and healthcare delivery is important to ensure that all populations benefit from scientific discoveries. The course will provide an overview of foundational concepts, theories, study designs, measurement, and research methods in implementation science.

Main References

1. Implementation Science: The Key Concepts (Routledge Key Guides) 1st Edition by Frances Rapport (Editor), Robyn Clay-Williams (Editor), Jeffrey Braithwaite (Editor). ISBN 9780367626112. Published June 7, 2022 by Routledge

Assessment Methods

Continuous assessment : 100%

Final Examination: -

Master of Public Health Programme Schedule

Semester 1 (14 weeks)	<ul style="list-style-type: none"> Four (4) core courses each of three (3) credits, totalling twelve (12) credits 	Examination
Semester 2 (14 weeks)	<ul style="list-style-type: none"> Five (5) specialisation courses each of three (3) credits; totalling fifteen (15) credits 	Registration (Admission Evaluation)
Special semester (8 weeks)	<ul style="list-style-type: none"> Three (3) elective courses each of two (2) credits, totalling six (6) credits. Research Project totalling nine (9) credits. 	End of Semester 1
		End of Semester 2

Name of Programme : Master of Health Research Ethics
Mode : By Coursework
Faculty : Faculty of Medicine

1. Classification of Programme

The Master of Health Research Ethics is a programme by coursework in which the credits for the research component comprises less than thirty (30) percent of the total credits for the whole programme of study. After completion of the relevant programme of study specified in this Schedule, a candidate shall be eligible for the award of the Master of Health Research Ethics degree.

2. Entry Requirements

- (1) A Bachelor's degree related to health research ethics with CGPA of at least 3.0 and above or equivalent; **or**
- (2) A Bachelor's degree with at least 1 year of working experience in related field; **or**
- (3) An equivalent qualification approved by the Senate from time to time.

AND

Pass the entrance assessment set by the faculty

Language Requirement

The Non-Malaysian applicant whose degree is from university or institution of higher learning that did not use English as the medium of instruction for that degree shall be required:

Type of English Qualifications		Minimum Score
International English Language Testing (IELTS)		6
Test of English as a Foreign Language (TOEFL)	IBT (Centre based)	60
	IBT Essentials	8.5
Pearson Test of Academic English (PTE)		59
Cambridge English Qualifications and Tests	B1 Preliminary, B2 First, C1 Advanced, C2 Proficiency	169
	Lingua skill Online	169
	Occupational English Test (OET) (Conventional/Online)	250

3. Duration of Study

- (1) The minimum duration of study shall be two (2) semesters and one (1) special semester
- (2) The maximum duration of study shall be eight (8) semesters

4. Structure of Programme

- (1) The Master of Health Research Ethics programme by coursework comprises of forty-two (42) credits namely.
 - (a) six (6) core courses, each of three (3) credits, totalling eighteen (18) credits
 - (b) Practicum in Health Research Ethics of nine (9) credits;
 - (c) A Research Project of nine (9) credits;
 - (d) Two (2) elective courses, each of three (3) credits, totaling six (6) credits.
- (2) Details of the courses offered are as approved by Senate from time to time on the recommendation of the Faculty and candidates shall be informed of such details at the beginning of each session.
- (3) The lists of courses for the programme of Master of Health Research Ethics are provided in List 1.

Programme Aim

To produce graduates equipped with the knowledge, skills and attitudes to lead in the field of research ethics through responsible conduct and governance of health research.

Programme Educational Objectives (PEO)	
PEO 1	are knowledgeable in the concept of research ethics and able to apply them to ensure responsible conduct of health research.
PEO 2	have the skills and attitudes to solve research ethical issues when conducting or governing health research.
PEO 3	are able to work with stakeholders in advancing ethical conduct of health research in an institution.

Programme Learning Outcomes (PLO)	
PLO1	Master the concepts and theories in the field of research ethics.
PLO2	Apply the principles of research ethics in the conduct of health research and its governance.
PLO3	Safeguard societal values through enhancing the implementation of health research ethics
PLO4	Conduct health research by adhering to legal, ethical and professional codes of practice.
PLO5	Demonstrate leadership qualities through communicating and working effectively with peers and stakeholders in the field of health research ethics.
PLO6	Solve problems related to health research ethics by using scientific and critical thinking skills.
PLO7	Engage in lifelong learning by continuously updating the knowledge and skills in health research ethics.

List 1

Code	Title	Credits
Core Courses		
MQF7001	Health Research Methods	3
MQF7002	Research Project	9
MQF7003	Foundations of Research Ethics	3
MQF7004	Research Ethics in Special Populations	3
MQF7005	Responsible Conduct of Research	3
MQF7006	Ethical Issues in Global Health Research and Clinical Trials	3
MQF7007	Ethical Issues of Emerging Sciences	3
MQF7008	Practicum in Health Research Ethics	9
Elective Courses (choose two)		
MQF7009	Good Clinical Practice	3
MQF7010	Ethics in Animal Research	3
MQF7011	Healthcare Law and Ethics	3
SQE7006	Ethics of Sustainability	3
Total		42

➤ MQF7001: Health Research Methods (3 credits)

Learning Outcomes

At the end of the course, students are able to:

1. Describe a range of quantitative and qualitative research designs used in health research
2. Formulate appropriate research objectives & questions.
3. Conceptualize the step process in planning a health research
4. Design a research project on health research ethics

Synopsis

The course is intended to expose students to the various approaches of health research methods. Selected quantitative and qualitative studies will be introduced to enable the students to have a deeper understanding of research paradigms, designs and methodologies as well ethical issues across various study designs. In addition, this course is designed to provide knowledge and skills to students regarding the scientific process of health research including identifying a problem, articulating research questions, selecting appropriate research methods, and writing a health research ethics proposal.

Main Reference

1. Creswell, J. W., & Creswell, J. D. (2018). Research design: qualitative, quantitative, and mixed methods approaches. Thousand Oaks, CA: SAGE Publications, Inc.

2. Koporc, Z (2018). Ethics and Integrity in Health and Life Sciences Research Vol: 4. Emerald Publishing Limited: Yorkshire
3. Jacobsen, K. H. (2016). Introduction to health research methods. Burlington, MA: Jones & Bartlett Learning.
4. Sugarman J & Sulmasy DP (2010). Methods in Medical Ethics (2nd ed). Georgetown University Press.
5. Gall, M. D., Gall, J. P., & Borg, W. R. (2007). Educational research: An introduction (8th ed.). Boston: Pearson Allyn & Bacon.

Assessment Weightage

Continuous Assessment: 100%

Final Examination: -

➤ MQF7002: Research Project (9 credits)

Learning Outcomes

At the end of the course, students will be able to:

1. Propose a research project that examines the ethical issues.
2. Conduct appropriate research to address the ethical challenges.
3. Present the research plan and results professionally.

Synopsis

The course requires candidates to formulate a research question, design and conduct a research project that aims to address the ethical challenges in research, clinical practice, and program implementation. During the project, students will collect data and apply suitable analytic methods in order to evaluate specific ethical principles such as informed consent, individual and community rights, confidentiality, and other ethical standards.

Main Reference

1. Silvia PJ (2018). How to Write a Lot. A Practical Guide to Productive Academic Writing (2 nd ed). APA LifeTools.
2. Sieber JE & Tolich MB (2013). Planning Ethically Responsible Research (2nd ed). Sage Publications Inc.
3. Sugarman J & Sulmasy DP (2010). Methods in Medical Ethics (2 nd ed). Georgetown University Press.
4. Hoffman AH. (2020). Scientific Writing and Communication. Papers, Proposals, and Presentations (4 th ed). Oxford University Press
5. Lecture notes

Assessment Weightage

Continuous Assessment: 100%

Final Examination: -

➤ MQF7003: Foundations of Research Ethics (3 credits)

Learning Outcomes

At the end of this course, students are able to:

1. Demonstrate an awareness of key ethical theories and principles guiding research.
2. Differentiate relevant ethical theories and principles in various research contexts.
3. Assess the impact of ethical decisions and choices in a research setting

Synopsis

This course provides the candidate an overview of research ethics including the history, theories and principles of research ethics. Key topics such as consent, risks and benefits, confidentiality and justice will be taught. The student will have an opportunity to discuss and debate basic issues surrounding research ethics through small group discussions and individual presentations.

Main Reference

1. Rothman, David J. Strangers at the bedside: A history of how law and bioethics transformed medical decision-making. Basic Books 1991
2. General Assembly of the World Medical Association, 2014. World Medical Association Declaration of Helsinki: ethical principles for medical research involving human subjects at <https://www.wma.net/policies-post/wma-declaration-of-helsinki-ethical-principles-for-medical-research-involving-human-subjects/>
3. Department of Health, E., 2014. The Belmont Report. Ethical principles and guidelines for the protection of human subjects of research at <https://www.hhs.gov/ohrp/regulations-and-policy/belmont-report/read-the-belmont-report/index.html>
4. International Ethical Guidelines for Health-related Research Involving Humans, Fourth Edition. Geneva. Council for International Organizations of Medical Sciences (CIOMS); 2016. At <https://cioms.ch/wpcontent/uploads/2017/01/WEB-CIOMS-EthicalGuidelines.pdf>
5. Emanuel, E.J., Wendler, D. and Grady, C., 2000. What makes clinical research ethical? *Jama*, 283(20), pp.2701-2711.
6. Herring, Jonathan., 2018 Medical Law and Ethics. Oxford University Press

Assessment Weightage

Continuous Assessment: 70%

Final Examination:30%

➤ MQF7004: Research Ethics in Special Populations (3 credits)

Learning Outcomes

At the end of this course, students are able to:

- (1) apply the principles of research ethics and protecting values and rights of special populations
- (2) examine research ethical issues unique to the population
- (3) solve research ethical problems in special populations relevant to the local cultural context

Synopsis

This course focuses on research ethical issues in special populations including children and pregnant women, key populations, and people with physical and mental illnesses and disabilities. It teaches candidates how to apply research ethical concepts in the real world and equips them with the skills to appraise and solve research ethical problems when conducting research in these populations through case studies. This course also allows the candidates to reflect on their own values when examining research ethical issues in these vulnerable populations through case presentations and case reports.

Main Reference

1. International ethical guidelines for health-related research involving humans <https://cioms.ch/publications/product/international-ethical-guidelines-for-health-related-research-involving-humans/>
2. The Oxford Textbook of Clinical Research ethics
3. Website: Office for Human Research Protection. Available at: <https://www.hhs.gov/ohrp/>
4. The Belmont Report. Available at: <https://www.hhs.gov/ohrp/regulations-and-policy/belmont-report/read-the-belmont-report/index.html>

Assessment Weightage

Continuous Assessment: 70%

Final Examination: 30%

➤ MQF7005: Responsible Conduct of Research (3 credits)

Learning Outcomes

At the end of the course, students are able to:

1. Relate the multiple roles, responsibilities and values of an investigator with ethical conduct of research
2. Appraise the impact of responsible conduct of research on ethical dissemination of research findings
3. Propose strategies to manage and prevent publication misconduct

Synopsis

This course teaches the candidates the elements of responsible conduct of research. It stimulates the student to reflect on the importance of publication ethics as a culmination of research conducted in a responsible manner and its implications in the context of research dissemination by case reports and presentation. The course will also use case studies to demonstrate how publication misconducts can be prevented and addressed.

Main Reference

1. Committee on Publication Ethics. (2019). Core practices, in A4 poster format. Retrieved from <https://publicationethics.org/core-practices> [accessed Feb 2019]
2. American Society for Biochemistry and Molecular Biology. (2017). Code of ethics. Retrieved from <http://www.asbmb.org/Advocacy/CodeOfEthics/?terms=ethics> [accessed Feb 2019]
3. Macrina, F.L. (2014). Scientific integrity: text and cases in responsible conduct of research. Washington, DC: American Society for Microbiology Press. Chapter 3: Mentoring. pp53-82.
4. Macrina, F.L. (2014). Scientific integrity: text and cases in responsible conduct of research. Washington, DC: American Society for Microbiology Press. Chapter 8: Collaborative research. pp243-286.
5. How to Work with Your Institutional Animal Care and Use Committee (IACUC) <https://ori.hhs.gov/education/products/ncstate/index.htm>
6. Macrina, F.L. (2014). Scientific integrity: text and cases in responsible conduct of research. Washington, DC: American Society for Microbiology Press. Chapter 10: Scientific record keeping. pp329-360.
7. Himanen, L., Auranen, O., Puuska, H.M., and Nieminen, M. (2009). Influence of research funding and science policy on university research performance: A comparison of five countries, Science and Public Policy, Volume 36, Issue 6, 1 July 2009, Pages 419–430, <https://doi.org/10.3152/030234209X461006>.
8. Handling Misconduct. ORI Policy on Plagiarism. Guidelines for avoiding plagiarism (pdf – 71 pages). Retrieved from <https://ori.hhs.gov/ori-policy-plagiarism>.

Assessment Weightage

Continuous Assessment: 100%

Final Examination: -

➤ MQF7006: Ethical issues in global health research and clinical trials (3 credits)

Learning Outcomes

At the end of this course, students are able to:

1. Demonstrate an awareness of key aspects of global health and public health research ethics.
2. Analyse the ethical and legal issues involved in global health and public health situations.
3. Assess the impact of ethical choices and actions in a global health setting.

Synopsis

This course is designed for the candidate to understand the key aspects of global health research and public health situation through case studies. This course also introduce the candidates on certain topics for example ancillary care, vaccine research, HIV research and so on.

Main Reference

1. Millum, J. and Emanuel, E.J. eds., 2012. Global justice and bioethics. Oxford University Press.
2. Lavery, J.V., Grady, C. and Wahl, E.R. eds., 2007. Ethical issues in international biomedical research: a casebook. Oxford University Press, USA.
3. Emanuel, E.J., Wendler, D., Killen, J. and Grady, C., 2004. What makes clinical research in developing countries ethical? The benchmarks of ethical research. The Journal of infectious diseases, 189(5), pp.930-937.
4. Cash, R., Wikler, D., Saxena, A., Capron, A. M., & World Health Organization. (2009). Casebook on ethical issues in international health research [electronic resource]/edited by Richard Cash [... et al]. In Casebook on ethical issues in international health research [electronic resource]/edited by Richard Cash [... et al]. at http://apps.who.int/iris/bitstream/handle/10665/44118/9789241547727_eng.pdf?sequence=4

Assessment Weightage

Continuous Assessment: 100%

Final Examination: -

➤ MQF7007: Ethical Issues of Emerging Sciences (3 credits)

Learning Outcomes

At the end of this course, students are able to:

1. Illustrate the ethical and legal issues surrounding the area of emerging sciences
2. Examine the conflicting moral values and ethical principles involved in various areas of emerging sciences
3. Evaluate possible course of actions to address the ethical issues at stake

Synopsis

This courses introduces the ethical and legal issues arising from the emerging sciences, such as research in genetics and genomics, neuroethics, stem cell and biobanking. It teaches the candidate how to examine and deconstruct ethical problems arising from these emerging sciences, and determine and justify ethical principles that are relevant to the ethical problem. It also guides the candidate to find possible solutions to the ethical problem and make ethical decisions, including using regulatory measures. The candidates will be trained to make decisions when faced with situations where ethics, legal, and the values of the technologies interplay through case studies..

Main Reference

1. Universal Declaration on Bioethics and Human Rights
2. Universal Declaration on the Human Genome and Human Rights
3. UNESCO's Core Curriculum on Bioethics
4. World Commission on the Ethics of Scientific Knowledge and Technology (COMEST) Reports
5. Declaration of Helsinki
6. Belmont Report
7. Nuremberg Code
8. Emanuel et. al. Framework
9. Beauchamp, T. L., & Childress, J. F. (2013). Principles of biomedical ethics. Oxford University Press, USA.
10. Resnik, D. B. (2005). The ethics of science: An introduction. Routledge.

Assessment Weightage

Continuous Assessment: 70%

Final Examination: 30%

➤ MQF7008: Practicum in Health Research Ethics (9 credits)

Learning Outcomes

At the end of this course, students are able to:

1. Interpret the principles of research ethics in practical setting.
2. Demonstrate leadership and teamwork while working with key population
3. Solve real world ethical issue in research through various attachments and field work.

Synopsis

This course focuses on the practical aspects of research ethical issues in special populations including prisoners, those who are culturally vulnerable and with physical and mental illnesses and disabilities. It intends to provide a broad but reasonably detailed examination of central ethical issues in these populations. This course follows a format, which after an introductory session, time is devoted to gain hands-on experience through working with special populations, attending research ethics meetings, presentations, group discussions and development of the research report. The candidate will have the opportunity to be attached to two different research ethics committees, so that they can learn and compare different systems of reviewing research ethics. It teaches the candidates how to apply research ethical concepts as well as to equip them with the skills to appraise and solve research ethical problems when conducting research with these populations through field visits and feedback.

Main Reference

1. UMMC MREC. Research Ethic . Available from:
http://www.umm.edu.my/research/research_ethics.asp
2. MOH. Medical Research and Ethics Committee. Availabler from <http://nih.gov.my/web/mrec/>

Assessment Weightage

Continuous Assessment: 100%

Final Examination: -

➤ MQF7009: Good Clinical Practice (3 credits)

Learning Outcomes

At the end of this course, students are able to:

1. Apply the principles of Good Clinical Practice in Clinical Trial
2. Examine clinical trials that involve the participation of human subjects.
3. Solve ethical problems in Clinical Trials to ensure study subjects' wellbeing are safeguarded

Synopsis

This course teaches international and local ethical and scientific quality standards for designing, conducting, recording and reporting clinical trials that involve the participation of human subjects. It will include ethical and regulatory issues related to the conduct of clinical trials such as responsibilities of investigators, safety monitoring and reporting, legal issues in clinical trials, audit and inspections. Besides, Good Clinical Practice, other relevant practice guidelines such as Good Laboratory Practice, Good Manufacturing Practice, Good Statistical Practice will be covered.

Main Reference

1. Malaysian Guideline for Good Clinical Practice Fourth Edition, 2018
2. Wandile P, Ghooi. R (2017), A Role of ICH:GCP in Clinical Trial Conduct. Journal Clinical Research Bioethics 8:1000297
3. Malaysian Guideline for Independent Ethics Committee Registration and Inspection, First Edition, 2016, NPRA, MOH.
4. Malaysian Guideline for Application of Clinical Trial Import Licence and Clinical Trial Exemption. 6.3 edition, July 2016, NPRA, MOH.
5. Malaysian Guidelines for Independent Ethics Committee Registration and Inspection, 1 st edition, May 2016, NPRA, MOH
6. Malaysian Guideline For Safety Reporting of Investigational Products, First Edition, 2014, NPRA, MOH
7. g) Malaysian Guideline for Bioequivalence Inspection, First Edition, 1st October
8. 2014.
9. Guidelines For Good Clinical Practice (Gcp) Inspection, August 2010, NPRA, MOH.
10. Noor Zurani MHR, Aziz N, Abd Aziz, Abd Hamid, Mohamed M, Othman S, Hussein N (2008). The need for 'Good Clinical Practice' in Health care research. Journal of the South Africa Academy of Family Practice/Primary Care 51:3 (202–205)
11. The conduct of Bioavailability and Bioequivalence Studies, First edition, 14th September 2000.
12. International Council Harmonisation (ICH) Guidelines.

Assessment Weightage

Continuous Assessment: 100%%

Final Examination: -

➤ MQF7010: Ethics in Animal Research (3 credits)

Learning Outcomes

At the end of this course, students are able to:

1. Describe different methods and techniques used in experiments involving animals
2. Explain ethical and welfare issues with regards to animal experimentation
3. Analyze the applications of laboratory animals in research

Synopsis

This course is designed to provide facts and instil principles essential to the humane use and care of animals that will in turn ensure the quality of biomedical research. Students will be taught basic animal biology and husbandry, as well as animal handling techniques during experimental procedures. The students' responsibilities towards the welfare of the animals used and the ethical concerns of biomedical research will be emphasised.

Main Reference

1. Hau, J. & Schapiro, S. J. (2010). Handbook of Laboratory Animal Science, Volume I Essential Principles and Practices (3rd Edition). CRC Press.
2. NRC (2011). Guide for the Care and Use of Laboratory Animals (8th Edition). The National Academies Press.
3. Laboratory Animal Science Professional, AALAS
4. University of Malaya Faculty of Medicine IACUC Policy (2018); <http://resfom.um.edu.my/ethics/ethics-institutional-animal-care-and-use-committee-iacuc/>
5. Danio Rerio (2011) Guidance on the housing and care of Zebrafish
6. OECD (2000) Guidance for Use of Clinical Signs as Humane Endpoints

Assessment Weightage

Continuous Assessment: 70%

Final Examination: 30%

➤ **MQF7011: Healthcare Law and Ethics (3 credits)**

Learning Outcomes

At the end of this course, students are able to:

1. Evaluate the ethical and medico-legal issues that might arise in health research;
2. Analyse the adequacy or inadequacy of existing law in conducting and managing health research;
3. Examine a specific health research ethics issue, present a critique of the issue and offer possible solutions.

Synopsis

The study of healthcare matters may be considered from four aspects. First the relationship between the healthcare provider and the patient; Second, the relationship between the state and the individual in relation to public health; Third, the relationship between the state and the healthcare provider and lastly, selected bioethics issues that require a consideration of the relationship between law and ethics in dealing with advances in science and technology.

The emphasis of this course is on the first aspect mentioned above, namely, the patient-doctor/hospital relationship. Selected bio-ethics issues will also be examined.

Main Reference

1. M Brazier & E Cave, (2016) *Medicine Patients and the Law*, 5th ed, Manchester University Press
2. G Laurie, S Harmon, and G Porter. (2016). *Mason and McCall Smith's Law and Medical Ethics* (10th ed.). OUP
3. Herring J, *Medical Law and Ethics* [2018] Oxford University Press; 7th edition
4. Puteri Nemie Jahn Kassim.(2010) *Law and Ethics Relating to the Medical Profession*, International Law Books Series
5. Jonathan Herring (2018), *Medical Law and Ethics* (7th edition) OUP Oxford

Assessment Weightage

Continuous Assessment: 70%

Final Examination: 30%

➤ **SQE7006: Ethics of Sustainability (3 credits)**

Learning Outcomes

At the end of this course, students are able to:

1. analyse ethical issues in sustainability based on basic ethical principles.
2. suggest solution to contemporary ethical problems related sustainable development.
3. exhibit skills associated with decision-making process.

Synopsis

Introduction to the worldview of modern science and emphasis on its relation with ethical issues of sustainable development. Ethical implications of new technologies and moral choices. Professional ethics in science, technology, experimentation and research related to sustainable development.

Main Reference

1. Lemons, J., & Brown, D. A. (Eds.). (2013). *Sustainable development: Science, ethics, and public policy* (Vol. 3). Springer Science & Business Media.
2. Maxwell, B. (2008). *Professional Ethics Education: Studies in Compassionate Empathy* [electronic resource] / by Bruce Maxwell. Dordrecht: Springer Netherlands.
3. Briggie, A., & Mitcham, C. (2012). *Ethics and science: An introduction*. Cambridge University Press.

4. MacKinnon, B., & Fiala, A. (2014). Ethics: Theory and contemporary issues. Nelson Education.

Assessment Weightage

Continuous Assessment: 60%

Final Examination: 40%

Master of Health Research Ethics Programme Schedule

Special Semester	<ul style="list-style-type: none"> A practicum of nine (9) credits 	Examination
Semester II	<ul style="list-style-type: none"> A research project of nine (9) credits Two (2) elective courses, each of three (3) credits, totalling six (6) credits; and Two (2) core courses, each of three (3) credits, totalling six (6) credits; 	(i) End of Semester I (ii) End of Semester II
Semester I	<ul style="list-style-type: none"> Two (2) elective courses, each of three (3) credits, totalling six (6) credits Four (4) core courses, each of three (3) credits, totalling twelve (12) credits 	Registration (Admission Evaluation)

Name of Programme : Master of Medical Parasitology and Entomology
Mod : By Coursework
Faculty : Faculty of Medicine

1. Classification of Programme

The Master of Medical Parasitology and Entomology is a programme by coursework in which the credits for the research component comprises less than thirty (30) percent of the total credits for the whole programme of study. After completion of the relevant courses of study specified in this Schedule, a candidate shall be eligible for the award of the Master of Medical Parasitology and Entomology.

2. Entry Requirements

Bachelor's Degree in fields related to Health, Science or Biology

- (1) Bachelor's degree with Cumulative Grade Point Average (CGPA) of at least 3.00 or equivalent; **or**
- (2) Bachelor of Medicine and Bachelor of Surgery or Bachelor of Dental Surgery or equivalent medical qualification; **or**
- (3) Bachelor's degree with CGPA of 2.70 up to 2.99 can be considered if one (1) and CGPA of 2.50 up to 2.69 can be considered if two (2) of the following criteria is fulfilled;
 - (a) Having at least one (1) year working experience in related field; or
 - (b) Having publications in related field; or
 - (c) Is a recipient of a scholarship; or
 - (d) A graduate of the University of Malaya; or
 - (e) Is a government servant; or
 - (f) Passed the interview by the faculty; or
 - (g) Passed the entrance assessment by the faculty
- (4) Bachelor's degree with CGPA of 2.00 up to 2.49 can be considered if passed the interview by the faculty and fulfilled one (1) of the following criteria within (a) to (c) below;
 - (a) Having at least five (5) years working experience in related field; or
 - (b) Have at least one (1) publication in related field; or
 - (c) Passed the entrance assessment by the faculty

Bachelor's Degree in fields non-related to Health, Science or Biology

- (1) Bachelor's degree with CGPA of at least 2.70 and at least one (1) year of working experience in related field; **or**
- (2) Bachelor's degree with CGPA of 2.50 up to 2.69 and at least one (1) year of working experience in related field can be considered if one (1) of the following criteria is fulfilled;

- (a) Having publications in related field; or
 - (b) Is a recipient of a scholarship; or
 - (c) A graduate of the University of Malaya; or
 - (d) Is a government servant; or
 - (e) Passed the interview by the faculty; or
 - (f) Passed the entrance assessment by the faculty
- (3) Bachelor's degree with CGPA of 2.00 up to 2.49 and at least five (5) years of working experience in related field can be considered if passed the interview by the faculty.

Language Requirement

The Non-Malaysian applicant whose degree is from university or institution of higher learning that did not use English as the medium of instruction for that degree shall be required:

Type of English Qualifications		Minimum Score
International English Language Testing (IELTS)		6
Test of English as a Foreign Language (TOEFL)	IBT (Centre based)	60
	IBT Essentials	8.5
Pearson Test of Academic English (PTE)		59
Cambridge English Qualifications and Tests	B1 Preliminary, B2 First, C1 Advanced, C2 Proficiency	169
	Lingua skill Online	169
	Occupational English Test (OET) (Conventional/Online)	250

3. Duration of Study

- (1) The minimum duration of study shall be two (2) semesters and one (1) special semester
- (2) The maximum duration of study shall be eight (8) semesters

4. Structure of Programme

- (1) The Master of Medical Parasitology and Entomology programme by coursework comprises forty-two (42) credits as follow:
 - (a) Five (5) core courses each of three (3) credits, totalling fifteen (15) credits;
 - (b) Four (4) specialisation courses each of three (3) credits; totalling twelve (12) credits;
 - (c) Research Project totalling nine (9) credits; and
 - (d) Two (2) elective courses each of three (3) credits, totalling six (6) credits.
- (2) Details of the courses offered are as approved by Senate from time to time on the recommendation of the Faculty and candidates shall be informed of such details at the beginning of each session.

- (3) The lists of courses for the programme of Master of Medical Parasitology and Entomology are provided in List 1.

Programme Goal

To produce trained professionals in the field of Medical Parasitology and Entomology

Programme Educational Objective(s) (PEO)	
PEO1	Graduates establish themselves as practitioner in medical parasitology and entomology or other related fields.
PEO2	Graduates contribute to sustainable development and ethical promotion of health practices pertaining to well-being of society and environment.
PEO3	Graduates engage in lifelong pursuit of knowledge and interdisciplinary learning appropriate for industrial and academic careers.

Programme Learning Outcome(s) (PLO)	
PLO1	Apply knowledge critically to manage problems in field of Medical Parasitology and Entomology.
PLO2	Apply appropriate practical and analytical skills in field of Medical Parasitology and Entomology.
PLO3	Demonstrate self-advancement through continuous development in Medical Parasitology and Entomology for the well being of society and environment.
PLO4	Solve problems professionally and practically to handle the changes and needs in the field with an ethical and professional approach.
PLO5	Exhibit interactive, communication and leadership skills that foster teamwork especially towards efforts for integrating scientific and technical knowledge in writings, oral presentations and field works.
PLO6	Utilize principles and techniques of Medical Parasitology and Entomology with critical thinking to interpret and analyze findings as well as design viable experiments to test scientific hypothesis.
PLO7	Apply appropriate digital technologies to analyze data and enhance study in Medical Parasitology and Entomology
PLO8	Demonstrate significant attitude of independence, confidence and responsibility when performing tasks/research project in the chosen discipline.

List 1

Programme Core Courses		
Code	Course	Credits
MQG7001	Project Design	3
MQG7003	Concepts and Fundamentals of Medical Parasitology and Entomology	3
MQG7004	Medical Protozoology	3
MQG7005	Medical Helminthology	3
MQG7008	Medical Entomology	3
Total		15
Programme Specialisation Courses		
Code	Course	Credits
MQG7007	Applied Immunology and Molecular Biology in Parasitology	3
MQG7009	Applied Entomology	3
MQG7011	Acarology	3
MQG7012	Advanced Research Techniques	3
Total		12
Elective Courses (Choose two only)		
Code	Courses	Credits

MQG7006	Parasites Epidemiology and Relationship with Other Diseases	3
MQG7010	Forensic Entomology	3
MQG7013	Trends in Parasitic Diseases	3
Total		6
Research Project		
Code	Courses	Credits
MQG7014	Research Project	9
Total		9
Overall Total		42

MQG7001: Project Design (3 credits)

Learning Outcomes

At the end of the course, students are able to:

1. Search related publications under the chosen project topic.
2. Analyze critically literature review according to the chosen project.
3. Design suitable methodology for project in parasitology and entomology fields.

Synopsis

Students will perform literature search based on the chosen project topic using various resources under supervision of supervisor(s). The literature review will be critically analysed and used to design the project. Written proposal and oral presentation will be evaluated by internal examiner and supervisor.

Main References

1. Wilfred C.G. Peh Kwan Hoong Ng (2016). Effective Medical Writing: The Write Way to Get Published; UM Press.
2. Toto R, McPhaul M. Clinical Research: From Proposal to Implementation: Lippincott Williams & Wilkins; 2010.
3. World Health Organization. Laboratory Biosafety Manual, 3rd Edition, 2004. <http://www.who.int/csr/resources/publications/biosafety/Biosafety7>.
4. Biostatistics: A Foundation for Analysis in the Health Sciences. Wayne W Daniel: (2010) 9th Ed (International Student Version), John Wiley & Sons, INC
5. Epidemiology Leon Gordis: (2009) 4th edition, Elsevier Saunders, Philadelphia, PA. USA

Assessment Weightage

Continuous Assessment: 100%

Final Examination: -

MQG7014: Research Project (9 credits)

Learning Outcomes

At the end of the course, students are able to:

1. Perform the research based on the chosen project topic.
2. Analyse the findings or data critically.
3. Present the findings from the project that has been carried out via writing and oral presentation.

Synopsis

Students will perform chosen project under supervision of supervisor(s). Findings of the project will be presented in one session of oral presentation and one written project report. Oral presentation and written project report will be evaluated by internal examiner and supervisor.

Main References

1. Walochnik J, Duchene M. (2015). Molecular Parasitology: Protozoan parasites and their molecules. Springer.
2. Marquardt W. (2004). Biology of Disease Vectors. Elsevier, 2nd edition.
3. Garcia LS. (2007). Diagnostic Medical Parasitology. ASM Press.
4. Reference books/online information/journals. Students need to meet supervisor for discussion.

Assessment Weightage

Continuous Assessment: 100%

Final Examination: -

MQG7003: Concepts and Fundamentals of Medical Parasitology and Entomology (3 credits)

Learning Outcomes

At the end of the course, students are able to:

1. Explain the taxonomy and terminology of parasitology and entomology.
2. Interpret parasitology and entomology data.
3. Apply the skills needed to be productive researcher.

Synopsis

The course covers the concepts and fundamentals of medical parasitology and entomology and explores the skills needed to be an effective researcher.

Main References

1. Mehlhorn H. (2016). Human Parasites: Diagnosis, Treatment, Prevention. Springer, 1st edition.
2. Locker ES, Hofkin BV. (2015). Parasitology: A Conceptual Approach. Garland Science; 1 edition.

Assessment Weightage

Continuous Assessment: 60%

Final Examination: 40%

MQG7004: Medical Protozoology (3 credits)

Learning Outcomes

At the end of the course, students are able to:

1. Explain the pathogenesis of protozoa infections.
2. Describe the morphology, life cycle, transmission methods and the control of protozoan parasites.
3. Apply basic principles in parasitology with regards to problems in protozoa infections.
4. Criticise current issues in medical protozoology.

Synopsis

This course covers the fundamentals of medical protozoology, their clinical significance and basic identification techniques.

Main References

1. Paniker CJ. Textbook of Medical Parasitology. 7th Edition. Jaypee Brothers Medical Publishers (P) Ltd; 2013.
2. John DT, Petri Jr WA. Markell and Voge's Medical Parasitology. 9th Edition. Saunders Elsevier; 2006.
3. Mahmud R, Lim YA, Amir A. Medical Parasitology: A Textbook. Springer; 2018.

Assessment Weightage

Continuous Assessment: 70%

Final Examination: 30%

MQG7005: Medical Helminthology (3 Credits)

Learning Outcomes

At the end of the course, students are able to:

1. Describe fundamental concepts of medical helminthology.
2. Explain the epidemiology, pathogenesis, control and preventive measures on helminthic infections.
3. Apply knowledge in transmission and life cycle to diagnose, treat and control helminthic infections.

Synopsis

This course covers aspects biological features and distribution of parasitic worms, pathogenesis, diagnosis, treatment and prevention and control measures.

Main References

1. Mahmud R, Lim YAL & Amir A (2018). Medical Parasitology: A Textbook. Springer.
2. Lim YAL & Vythilingam I (2013). Parasites and their vectors: A special focus on Southeast Asia. Springer.
3. CK Jayaram Paniker. extbook of Medical Parasitology.6th Edition: Jaypee.
4. Neva FA & Brown HW. Basic Clinical Parasitology. 6th Edition. Appleton and Lange, Norwalk, Connecticut.
5. Heelan JS & Ingersoll FW. Essentials of Human Parasitology. Delmar, Thomson Learning Inc.

Assessment Weightage

Continuous Assessment: 60%

Final Examination: 40%

MQG7006: Parasites Epidemiology and Relationship with Other Diseases (3 credits)

Learning Outcomes

At the end of the course, students are able to:

1. Describe the global epidemiology of major parasitic infections and its relationship with other diseases.
2. Perform epidemiological survey.
3. Interpret experimental data of parasitic infections.
4. Critically review the effectiveness of a global parasite elimination programme.

Synopsis

The course covers aspects of epidemiology of important protozoa and helminths, interpretation of experimental data of parasitic infections and the effectiveness of parasite elimination programme. The course also discuss about the relationship of parasites with other diseases.

Main References

1. Pisarski K. (2019) The Global Burden of Disease of Zoonotic Parasitic Diseases: Top 5 Contenders for Priority Consideration. Trop Med Infect Dis 4(1). pii: E44. doi: 10.3390/tropicalmed4010044.
2. Maizels RM. (2016) Parasitic helminth infections and the control of human allergic and autoimmune disorders. Clin Microbiol Infect. 22(6):481-6. doi: 10.1016/j.cmi.2016.04.024.
3. van Tong H, Brindley PJ, Meyer CG, Velavan TP. (2017) Parasite Infection, Carcinogenesis and Human Malignancy. EBioMedicine. 2017 Feb;15:12-23. doi: 10.1016/j.ebiom.2016.11.034

Assessment Weightage

Continuous Assessment: 60%

Final Examination: 40%

MQG7007: Applied Immunology and Molecular Biology in Parasitology (3 Credits)

Learning Outcomes

At the end of the course, students are able to:

1. Describe the molecular mechanisms and pathogenesis of parasites, and host immune regulations in various parasitic infections.
2. Apply the suitable immunology and molecular biology concepts in parasitology with regards to problems in parasitic infections.
3. Design parasitology research by integrating the knowledge of DNA technologies.

Synopsis

The course covers aspects of general background of immunology, immunology of parasitic infections, immunization, current approaches in vaccine development, molecular biology of parasitic infections, and molecular cloning technologies.

Main References

1. Abbas AK, Lichtman AH, Pillai S. (2017). Cellular and Molecular Immunology. Philadelphia: Elsevier, 9th edition.
2. Tracey J. Lamb. (2012). Immunity to Parasitic Infection. John Wiley & Sons, Ltd.
3. Kennedy MW, Harnett W. (2013). Parasitic Nematodes: Molecular Biology, Biochemistry and Immunology. CABI, 2nd edition.

Assessment Weightage

Continuous Assessment: 60%

Final Examination: 40%

MQG7008: Medical Entomology (3 credits)

Learning Outcomes

At the end of the course, students are able to:

1. Differentiate the type of insects through morphological characteristics.
2. Identify the role of insects as disease vector.
3. Apply the knowledge of the insects' life cycle for their control strategies.

Synopsis

This course covers aspects biological features, identification and prevention and control measures.

Main References

1. Medical Entomology: A text book on public health and veterinary problems caused by arthropods. Editors: Eldridge, B.F., Edman, John (Eds).
2. Medical Entomology for Students by Mike Service 5th Edition 2012.
3. Biology of Disease Vectors: William Marquardt. 2nd edition 2004.

Assessment Weightage

Continuous Assessment: 60%

Final Examination: 40%

MQG7009: Applied Entomology (3 credits)

Learning Outcomes

At the end of the course, students are able to:

1. Apply knowledge of entomology to control vector borne diseases.
2. Formulate control methods based on bionomics of the vectors.
3. Manage measures for vector control.

Synopsis

The course covers aspects of control of all vector borne diseases including identification of the vectors, colonisation of the vectors, applied tools for vector control and all mechanisms of insecticide resistance.

Main References

1. Medical Entomology: A text book on public health and veterinary problems caused by arthropods. Editors: Eldridge, B.F., Edman, John (Eds.).
2. Medical entomology for students by Mike Service 5th edition 2012.
3. Biology of Disease vectors: William Marquardt. 2nd edition 2004.

Assessment Weightage

Continuous Assessment: 60%

Final Examination: 40%

MQG7010: Forensic Entomology (3 credits)

Learning Outcomes

At the end of the course, students are able to:

1. Apply knowledge of forensic entomology to investigate time of death.
2. Formulate standard operating procedures on collection and preservation of materials from crime scene.
3. Manage insects associated with forensic entomology.

Synopsis

The course covers aspects of forensic entomology which includes time of death, insect succession on dead bodies, identification and colonisation of important insects, and maggot therapy.

Main References

1. Forensic entomology: an introduction. D. Gennard. 2nd Edition 2012.
2. The science of forensic entomology. DB Rivers & GA Dahlem 2014.

Assessment Weightage

Continuous Assessment: 60%

Final Examination: 40%

MQG7011: Acarology (3 credits)

Learning Outcomes

At the end of the course, students are able to:

1. Describe the importance of acarines in biology, genetics, global ecosystem and health economics.
2. Design measures for acarine control and their potential uses.
3. Manage measures for acarine control.

Synopsis

The course covers aspects of acarology which include epidemiology, physiology of acarines, relationship of acarines with other organisms and the environment, and techniques involved in the study of acarines.

Main References

1. Arribas, P., Andújar, C., Moraza, M. L., Linard, B., Emerson, B. C., & Vogler, A. P. (2020). Mitochondrial Metagenomics Reveals the Ancient Origin and Phylodiversity of Soil Mites and Provides a Phylogeny of the Acari. *Molecular biology and evolution*, 37(3), 683–694.
2. Boeuf, A., Schnell, G., Bernard, Q., Kern, A., Westermann, B., Ehret-Sabatier, L., Grillon, A., Schramm, F., Jaulhac, B., & Boulanger, N. (2019). Dissociating effect of salivary gland extract from *Ixodes ricinus* on human fibroblasts: Potential impact on *Borrelia* transmission. *Ticks and tick-borne diseases*, 10(2), 433–441.

- Mariana, A., Mohd, K. B., Halimatun, I., Suhaili, Z. A., Shahrul-Anuar, M. S., Nor, Z. M., & Ho, T. M. (2011). Acarine ectoparasites of Panti Forest Reserve in Johore, Malaysia. Asian Pacific journal of tropical biomedicine, 1(1), 1–5.

Assessment Weightage

Continuous Assessment: 50%

Final Examination: 50%

MQG7012: Advanced Research Techniques (3 credits)

Learning Outcomes

At the end of the course, students are able to:

- Apply principles in advanced molecular diagnostic, immunological, genetic, proteomic, omics, imaging for research and diagnosis of parasitic infections.
- Interpret experimental data of parasitic infections.
- Design a laboratory or field-based research project.

Synopsis

The course covers aspects of molecular diagnostic techniques, immunological, omics, imaging, GIS, modelling and interpretation of experimental data of parasitic infections.

Main References

- Mahmud, R., Lim, Y. A. L. & Amir, A. (2018). Medical Parasitology: A Textbook. Springer.
- Service, M. (2012). Medical Entomology for Students (5th Edition). Cambridge University Press.
- Ash, L. R. & Orihel, T. C. (2007). Ash & Orihel's Atlas of Human Parasitology (5th Edition). American Society of Clinical Pathologist Press.
- http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1678-91992011000300003

Assessment Weightage

Continuous Assessment: 60%

Final Examination: 40%

MQG7013: Trends in Parasitic Diseases (3 credits)

Learning Outcomes

At the end of the course, students are able to:

- Comparing the problems in the field of parasitology and entomology based on information that has been learned.
- Select the appropriate solution to the problem encountered in the field of parasitology and entomology.

Synopsis

This course covers the latest issues in the field of parasitic infections. Through the information gained, students should discuss relevant topics in greater depth and propose a solution to the faced challenges associated with the parasitic diseases.

Main References

Journals: Clinical Infectious Disease, Infectious Diseases, The-scientist.com, Ethnopharmacology, Plos Med, Expert Rev Anti Infective Therapy, Global health metrics, Journal of Infectious Disease and Pathology, Translational Research, WHO reports, Clinical Review Allergy & Immunology, Frontiers in Veterinary Science.

Assessment Weightage

Continuous Assessment: 60%

Final Examination: 40%

**Master of Medical
Parasitology and Entomology
Programme Schedule**

Semester	Description	Examination
Special Semester	<ul style="list-style-type: none"> ▪ A research project of six (6) credits. 	Project Report, Oral Presentations
Semester II	<ul style="list-style-type: none"> ▪ A research project of three (3) credits; and ▪ Three (3) specialisation courses, each of three (3) credits, totalling nine (9) credits; and ▪ Two (2) elective courses, each of three (3) credits, totalling six (6) credits. 	(iii) End of Semester II
Semester I	<ul style="list-style-type: none"> ▪ Five (5) core courses, each of three (3) credits, totalling fifteen (15) credits; and ▪ One (1) specialisation course of three (3) credits. 	(iv) End of Semester I Registration (Admission Evaluation)

Name of Programme : Master of Epidemiology
Mod : By Coursework
Faculty : Faculty of Medicine

1. Classification of Programme

The Master of Epidemiology is a programme by coursework in which the credits for the research component comprises less than thirty (30) percent of the total credits for the whole programme of study. After completion of the relevant courses of study specified in this Schedule, a candidate shall be eligible for the award of the Master of Epidemiology.

2. Entry Requirements

- (1) Bachelor of Medicine and Bachelor of Surgery or Bachelor of Dental Surgery or equivalent medical qualification, OR
- (2) Bachelor in Public Health or Allied Health or equivalent with a CGPA of at least 3.00, AND
- (3) Pass the entrance assessment recognised by the Faculty

Language Requirement

The Non-Malaysian applicant whose degree is from university or institution of higher learning that did not use English as the medium of instruction for that degree shall be required:

Type of English Qualifications		Minimum Score
International English Language Testing (IELTS)		6
Test of English as a Foreign Language (TOEFL)	IBT (Centre based)	60
	IBT Essentials	8.5
Pearson Test of Academic English (PTE)		59
Cambridge English Qualifications and Tests	B1 Preliminary, B2 First, C1 Advanced, C2 Proficiency	169
	Lingua skill Online	169
	Occupational English Test (OET) (Conventional/Online)	250

3. Duration of Study

- (1) The minimum duration of study shall be two (2) semesters and one (1) special semester
- (2) The maximum duration of study shall be eight (8) semesters

4. Structure of Programme

- (1) The Master of Epidemiology programme by coursework comprises forty two (42) credits as follow:
 - (a) Four (4) core courses each of three (3) credits, totalling twelve (12) credits;
 - (b) Five (5) specialisation courses each of three (3) credits; totalling fifteen (15) credits;
 - (c) Research Project totalling nine (9) credits; and
 - (d) Six (6) credits for elective courses.
- (2) Details of the courses offered are as approved by Senate from time to time on the recommendation of the Faculty and candidates shall be informed of such details at the beginning of each session.
- (3) The lists of courses for the programme of Master of Epidemiology are provided in List 1.

Programme Goal

To produce graduates that are knowledgeable, able to understand and apply the field of epidemiology sciences ethically.

Programme Educational Objective(s) (PEO)	
PEO1	Graduates establish themselves as practicing professionals in epidemiology or related fields.
PEO2	Graduates engage in lifelong learning and knowledge sharing in the field of epidemiology.
PEO3	Graduates contribute to epidemiological research towards improvement of the health and well-being of the society.

Programme Learning Outcome(s) (PLO)	
PLO1	Elaborate the advanced theories, and concepts in epidemiology and its relationship with other health disciplines.
PLO2	Apply high level of epidemiological skills in solving health related problems.
PLO3	Incorporate cultural, social, edonomic, behavioural and biological differences in the practice of epidemiology.
PLO4	Apply appropriate communication strategies to share epidemiological findings with the relevant parties.
PLO5	Solving epidemiological problems using appropriate biostatistical methods.
PLO6	Exhibit competent leadership and engage in teamwork in addressing communicable and non-communicable diseases.
PLO7	Inculcate life-long learning in managing epidemiological issues.
PLO8	Practise good values, positive attitudes, and professionalism in the conduct of epidemiological research and other professional activities

List 1

CORE COURSES		
Code	Course Title	Credits
MQB7001	Research Method	3
MQB7005	Principles and Methods of Epidemiology	3
MQB7049	Principles of Biostatistics	3
MQB7047	Principles of Management in Health	3
	TOTAL	12
SPECIALIZATION COURSES		
Code	Course Title	Credits
MQH7003	Study Design in Causal Research	3
MQH7004	Concepts and Methods in Causal Inferences	3
MQH7005	Statistical Methods for Health Data Analytics	3
MQH7006	Clinical Epidemiology	3
MQH7007	Epidemiology in Public Health Practice	3
	TOTAL	15
ELECTIVE COURSES (6 credits)		
Code	Course Title	Credits
MQH7008	Screening and Diagnostic Research	2
MQH7009	Prognostic Research	2
MQH7010	Clinical Trials	2
MQH7011	Data Management	2
MQH7012	Survival Analysis	2
MQH7013	Field Attachment in Epidemiology	6
MQB7012	Producing Better Evidence	2
MQB7014	Health Economics	2
MQB7027	Qualitative Inquiry in Public Health	2
MQB7033	Social Determinants of Health	2
MQB7040	Nutritional Epidemiology	2
	TOTAL	6
RESEARCH PROJECT		
Code	Course Title	Credits
MQH7014	Research Project	9
	TOTAL	9
	OVERALL	42

CORE COURSES

➤ MQB7001: Research Method (3 Credits)

Learning Outcomes

At the end of the course, the candidate is able to:

1. Apply appropriate study designs and methodology for a selected research question
2. Apply critical thinking to solve public health problems

Synopsis

The students will be introduced to the steps involved in the research process. Critical appraisal on scientific articles produced by other researchers will provide 'hands on' experience for students to understand the methodological issues in the conduct of studies. With the above mentioned knowledge,

students will be able to increase their expertise in appraising scientific articles and producing research proposals in a scientific manner.

Main References

1. Gordis, Leon. Epidemiology 6th edition. Publisher: W.B. Saunders, 2019.
2. Schimel J: Writing science: how to write papers that get cited and proposals that get funded. New York: Oxford University Press; 2012. ISBN: 9780199760237.
3. Toto R, McPhaul M. Clinical Research: From Proposal to Implementation: Lippincott Williams & Wilkins; 2010.
4. Guyatt G, Eikelboom JW, Akl EA, Crowther M, Gutterman D, Kahn SR, Schunemann H, Hirsh J. A guide to GRADE guidelines for the readers of JTH. J Thromb Haemost. 2013 Aug;11(8):1603-8. doi: 10.1111/jth.12320. PMID: 23773710.
5. Guyatt GH, Oxman AD, Sultan S, et al. GRADE guidelines: 9. Rating up the quality of evidence. J Clin Epidemiol. 2011;64(12):1311-6. doi: 10.1016/j.jclinepi.2011.06.004.

Assessment Methods

Continuous assessment: 100%

Final Examination: -

➤ MQB7005: Principles and Methods of Epidemiology (3 Credits)

Learning Outcomes

At the end of this course, the candidate is able to:

1. Apply the epidemiological concepts to explain disease occurrence and transmission.
2. Apply the principles of prevention and control to manage health problems.
3. Demonstrate ability to calculate measures of association using appropriate study designs.

Synopsis

This course introduces candidates to the principles and methods of epidemiology which will form the basis to other courses in epidemiology. This course also demonstrates the applications of epidemiologic principles and methods.

Main Reference

1. Goldis L, Epidemiology: Elsevier/Sanders. 6th Edition; 2019.
2. Penny Webb, Bain Chris, Prozzo Sandi. Essential Epidemiology: An Introduction for Students and Health Professionals. Cambridge University Press. 2018. ISBN13 9781107529151
3. Rothman, Kenneth. Modern Epidemiology. 3rd edition. Lippincott Williams & Wilkins, 2013. ISBN13: 9781451190052

Assessment Methods

Continuous assessment: 50%

Final examination: 50%

➤ **MQB7049: Principles of Biostatistics (3 Credits)**

Learning Outcomes

At the end of the course, the candidate is able to:

4. Describe principles of statistics in public health.
5. Apply the appropriate statistical techniques for health data.
6. Interpret the results of statistical analysis performed for health data.

Synopsis

This module will cover basic statistical techniques that are important for analyzing data arising from public health research. Major topics include descriptive statistics, elements of probability, introduction to estimation and hypothesis testing, nonparametric methods, analytical techniques for categorical data, regression analysis, analysis of variance, and elements of study design. The concept and applications of statistical methods are stressed. At the end of the module, the candidate will also have the knowledge of the need for non-parametric statistical techniques as alternatives to parametric methods; acquired skills in their practical implementation and have an understanding of the underlying theory.

Main References

1. Neil A. Weiss. Introductory Statistics, 10th Edition, Pearson International Edition, 2016.
2. Bernard Rosner. Fundamentals of Biostatistics. 8th Edition. Duxbury Thomson Learning. 2016.
3. Chap T. Le, Lynn E. Eberly, Introductory Biostatistics. 2nd Edition. Wiley, 2016.
4. K.V.S. Sarma, R. Vishnu Vardhan, Multivariate statistics made simple: a practical approach, CRC Press, Taylor & Francis Group, 2019.
5. Julien I E Hoffman. Biostatistics for Medical and Biomedical Practitioners. 2nd edition. Academic Press. 2019.

Assessment Methods

Continuous assessment: 60%

Final Examination: 40%

➤ **MQB7047: Principles of Management in Health (3 Credits)**

Learning Outcomes

At the end of the course, the candidate is able to:

1. Apply the concepts on management in healthcare programmes.
2. Analyse health management practise based on individual and group experiences.

Synopsis

This course is designed to expose the student the basic principles of Management and its application to the Health Services delivery. It will also expose issues in management as applicable to Primary Health Care and Hospitals.

Main References

1. Gopee N., Galloway J. Leadership and Management in Healthcare Sage Publications Ltd. London, 2nd Edition, 2014.
2. Michelle A. Green and Mary Jo Bowie Essentials of Health Information Management: Principles and Practices; 3rd Edition, Cengage Learning, USA, 2016

3. Ghani S.N., Yadav H, Health care in Malaysia. Univ. Of Malaya Press, Kuala Lumpur, 2008.
4. Yadav, H. Hospital Management. Univ. Of Malaya Press, Kuala Lumpur, 2006
5. Malaysian institute of Management, Management in Malaysia, 2008.

Assessment Methods

Continuous assessment: 50%

Final Examination: 50%

➤ MQH7003: Study Design in Causal Research (3 Credits)

Learning Outcomes

At the end of the course, the candidate is able to:

1. Apprehend different designs in causal research.
2. Differentiate different designs in causal research
3. Critically appraise designs in causal research

Synopsis

The aim of this course is to provide the epidemiological skills and principles in evaluating various study designs in causal research.

Main References

1. Tyler VanderWeele. Explanation in Causal Inference: Methods for Mediation and Interaction. (Oxford University Press) 1 edition (March 13, 2015)
2. Donald T. Campbell, Thomas D. Cook, Jr. William R Shadish. Experimental and Quasi-Experimental Designs for Generalized Causal Inference. (Cengage Learning, Inc.) 2 edition (April 1, 2003)
3. Richard McCleary, David McDowall, Bradley Bartos. Design and Analysis of Time Series Experiments. (Oxford University Press) 1 edition (June 8, 2017)

Assessment Methods

Continuous assessment: 100%

Final Examination: -

➤ MQH7004: Concepts and Methods in Causal Inference (3 Credits)

Learning Outcomes

At the end of the course, the candidate is able to:

1. Interpret the counterfactual outcomes approach for causal effects
2. Evaluate the key sources of bias in analyses of observational data, using appropriate methods
3. Differentiate key methods which can be used to estimate causal effects.

Synopsis

This course provides an overview of causal inference used in epidemiology and health services research. This covers an introduction to counterfactual outcomes as the basis for a framework for causation, and causal diagrams as a mechanism for translating scientific research questions and background knowledge into appropriate data analysis and modelling strategies.

Main References

1. Judea Pearl. Causality: Models, Reasoning and Inference. Cambridge University Press. 2009. ISBN-13: 9780521895606
2. Judea Pearl. An Introduction to Causal Inference. Createspace Independent Publishing Platform. 2015. ISBN13 9781507894293
3. Stephen L. Morgan (Editor) Handbook of Causal Analysis for Social Research. Springer; 2013. ISBN-13: 978-9400760936
- Rothman, Kenneth. Modern Epidemiology. 4th edition. Lippincott Williams & Wilkins, 2013.

Assessment Methods

Continuous assessment: 100%

Final Examination: -

➤ MQH7005: Statistical Methods for Health Data Analytics (3 Credits)

Learning Outcomes

At the end of the course, the candidate is able to:

1. Describe concepts on different types of regression analysis
2. Develop statistical analysis plan for analyzing various measures of health occurrences
3. Perform regression analysis to solve health problems

Synopsis

This module gives an overview of regression types and details the application of different types of regression. The course focuses on the theory behind regression analysis, formulation, interpretation and validation of regression models. A variety of regression models are introduced based on types of outcome data. Topics include linear regression, binary logistic regression, polytomous logistic regression, ordinal logistic regression, poisson regression, negative binomial regression, Zero inflated Poisson regression, confounding, interaction and effect modification. Applications of statistical methods will be emphasized.

Main References

1. Lisa M.Sullivan. Essentials of Biostatistics in Public Health. 3rd Edition. APHA. 2018.
2. Frank E. Harrell Jr. Regression Modeling Strategies: With Applications to Linear Models, Logistic and Ordinal Regression, and Survival Analysis (Springer Series in Statistics). 2nd edition, 2015.
3. Vittinghoff, E., Glidden, D.V., Shiboski, S.C., McCulloch, C.E. Regression Methods in Biostatistics: Linear, Logistic, Survival, and Repeated Measures Models. 2nd Edition. Springer. 2012
4. Hosmer D.W. and Lemeshow, S. Applied Logistic Regression. 3rd edition. John Wiley & Sons. 2013.

Assessment Methods

Continuous assessment: 100%

Final Examination: -

➤ **MQH7006: Clinical Epidemiology (3 Credits)**

Learning Outcomes

At the end of the course, the candidate is able to:

1. Describe the basic principles and methods of clinical epidemiological research encompassing diagnostic, prognostic and intervention studies.
2. Identify the basic analytical approaches in the various types of clinical epidemiological studies.
3. Critically appraise articles from clinical epidemiological studies.

Synopsis

The aim of this course is to provide an overview of clinical epidemiological research focusing on the design, data collection, analysis and interpretation of clinical studies. Participants will be trained to formulate answerable research questions to address real clinical issues. They will gain an insight on considerations in designing clinical epidemiological studies. Participants will also obtain hands on experience in critically reviewing evidence from clinical epidemiological studies to gauge the relevance for clinical practice and/or health policy-making.

Main References

1. Diederick E. Grobbee, Arno W. Hoes. Clinical Epidemiology: Principles, Methods and Applications for Clinical Research. Jones & Bartlett Learning; 2015.
2. Rothman K, Greenland S, Lash T. Modern epidemiology: Wolters Kluwer Health/Lippincott Williams & Wilkins; 2012.
3. Straus SE et al. Evidence-Based Medicine: How to Practice and Teach EBM. Churchill Livingstone; 2010.
4. Guyatt GH, Oxman AD, Sultan S, et al. GRADE guidelines: 9. Rating up the quality of evidence. J Clin Epidemiol. 2011;64(12):1311-6. doi: 10.1016/j.jclinepi.2011.06.004.
5. Sterne Jonathan A C, White Ian R, Carlin John B, Spratt Michael, Royston Patrick, Kenward Michael G et al. Multiple imputation for missing data in epidemiological and clinical research: potential and pitfalls BMJ 2009; 338 :b2393

Assessment Methods

Continuous assessment: 100%

Final Examination: -

➤ **MQH7007: Epidemiology in Public Health Practice (3 Credits)**

Learning Outcomes

At the end of the course, the candidate is able to:

1. Identify key features of outbreak surveillance systems at local, state, national and international levels
2. Distinguish the roles and authorities of various government agencies in outbreak management and response
3. Discuss factors that impact outbreak management and response, including emergency preparedness and response planning, surveillance system performance, communications, and legal issues
4. Communicate on preparation and response to outbreaks

Synopsis

Epidemiology is an integral component of public health practice. The discipline aims to provide the basis to prevent disease and to promote the health of populations through the study of the occurrence and distribution of health-related states or events, including the study of determinants influencing such states. This course will highlight the principal areas of professional epidemiology include epidemiologic assessment of public health data, health situation and trend analyses, and public health surveillance. Table-top exercises conducted in this course will provide exposure to students on disease outbreak management. These areas are closely linked to the essential public health function and services.

Main References

1. Sonja A. Rasmussen and Richard A. Goodman. The CDC Field Epidemiology Manual. Oxford University Press 2018
2. Principles of Epidemiology in Public Health Practice, Third Edition. An Introduction to Applied Epidemiology and Biostatistics. CDC 2012
3. Pia D. M. MacDonald .Methods In Field Epidemiology. Jones and Bartlett Publishers, Inc. 2011
4. Lisa M. Lee(Editor) Principles and Practice of Public Health Surveillance, Oxford University Press Inc 2010
5. Johan Giesecke. Modern Infectious Disease Epidemiology, Taylor & Francis Ltd. 2017
6. Parveen Bhalla Evaluation of non-communicable diseases control strategies : Evaluation of strategies on NCDs, LAP Lambert Academic Publishing 2012

Assessment Methods

Continuous assessment: 100%

Final Examination: -

➤ MQH7008: Screening and Diagnostic Research (2 Credits)

Learning Outcomes

At the end of the course, the candidate is able to:

1. Describe the principles and methods of primary diagnostic studies, and related issues
2. Identify the different measures of diagnostic value or accuracy, perform the analysis and interpret results from primary diagnostic studies.
3. Critically appraise articles on diagnostic research

Synopsis

The aim of this course is to provide the skills in designing and evaluating single 'diagnostic test' research, and introduce participants to the 'multivariable' aspect of true diagnostic research. Importantly, the course demonstrates the methods of diagnostic research and data analysis in which a patient's single test result will be considered in the context of other patient characteristics or test results.

These methods enable 1. direct estimation of individual probabilities of disease presence based on all available diagnostic information and 2. determination of the added value of a particular diagnostic test in clinical practice.

Main References

1. Diederick E. Grobbee, Arno W. Hoes. Clinical Epidemiology: Principles, Methods and Applications for Clinical Research. Jones & Bartlett Learning; 2015.
2. Rothman K, Greenland S, Lash T. Modern epidemiology: Wolters Kluwer Health/Lippincott Williams & Wilkins; 2012.

3. Straus SE et al. Evidence-Based Medicine: How to Practice and Teach EBM. Churchill Livingstone; 2010.
4. Guyatt GH, Oxman AD, Sultan S, et al. GRADE guidelines: 9. Rating up the quality of evidence. J Clin Epidemiol. 2011;64(12):1311-6. doi: 10.1016/j.jclinepi.2011.06.004.
5. Sterne Jonathan A C, White Ian R, Carlin John B, Spratt Michael, Royston Patrick, Kenward Michael G et al. Multiple imputation for missing data in epidemiological and clinical research: potential and pitfalls BMJ 2009; 338 :b2393

Assessment Methods

Continuous assessment: 100%

Final Examination: -

➤ MQH7009: Prognostic Research (2 Credits)

Learning Outcomes

At the end of the course, the candidate is able to:

1. Describe the relationship between the natural history of disease, risk factor and prognosis.
2. Perform and interpret analysis in prognostic research.
3. Critically appraise articles on prognostic research

Synopsis

The course covers theory, methods and practice of prognostic research. It covers basic and more advanced concepts, including likelihood ratios, ROC curves, discrimination, calibration, net reclassification. It discusses options in study design and potential sources of bias for prognostic research. Finally, it focuses on development, validation and application of risk prediction model.

Main References

1. Diederick E. Grobbee, Arno W. Hoes. Clinical Epidemiology: Principles, Methods and Applications for Clinical Research. Jones & Bartlett Learning; 2015.
2. Rothman K, Greenland S, Lash T. Modern epidemiology: Wolters Kluwer Health/Lippincott Williams & Wilkins; 2012.
3. Straus SE et al. Evidence-Based Medicine: How to Practice and Teach EBM. Churchill Livingstone; 2010.

Assessment Methods

Continuous assessment: 100%

Final Examination: -

➤ MQH7010: Clinical Trials (2 credits)

Learning Outcomes

At the end of the course, the candidate is able to:

1. Critically appraise clinical trial studies.
2. Evaluate specific ethical issues in clinical trials.
3. Develop a scientifically sound clinical trial proposal.

Synopsis

The aim of this course is to provide the epidemiological skills and ethical principles in designing and evaluating clinical trials.

Main References

1. Lawrence M Friedman, Curt D Furberg, David DeMets, David M Reboussin, Christopher B Granger. Fundamentals of Clinical Trials. Springer; 5th edition. 2015
2. Steven Piantadosi. Clinical Trials: A Methodologic Perspective (Wiley Series in Probability and Statistics) 3rd Edition. 2017

Assessment Methods

Continuous assessment: 100%

Final Examination: -

➤ MQH7011: Data Management (2 credits)

Learning Outcomes

At the end of the course, the candidate is able to:

1. Understand data management concepts and various data management tasks throughout the research data lifecycle.
2. Create data management plan based on principles and best practices of data management.
3. Integrate data handling skills in on research project.

Synopsis

This module is an introductory course to research data management. Students will learn about the diversity of data and their management needs across the research data lifecycle; components of good data management plans; best practices for working with data including the organization, documentation, and storage and security of data. Students will also understand the importance of archiving and sharing data as well as how to assess the trustworthiness of repositories. Critical concepts of data management principles and practical methods to support planning, collection, storage, and dissemination of data in clinical research will be taught. The module will use a combination of practical lessons, short quizzes, and hands-on exercises to help students develop their skills. After completing this module, students will develop a strong working knowledge and skill set in data management principles and practice and better equipped to manage data throughout the entire research data lifecycle from project planning to the project completion, including how data could be shared effectively and made available in a trustworthy repository.

Main References

1. Zozus, M. The Data Book: Collection and Management of Research Data (1st Edition). 2017. Chapman and Hall/CRC.
2. Briney, K. Data Management for Researchers: Organize, maintain and share your data for research success (Research Skills). 2015. Pelagic Publishing.
3. Data Observation Network for Earth. https://www.dataone.org/software-tools/tags/data_management_plan

Assessment Methods

Continuous assessment: 100%

Final Examination: -

➤ **MQH7012: Survival Analysis (2 credits)**

Learning Outcomes

At the end of the course, the candidate is able to:

1. Describe core concepts of survival analysis
2. Develop appropriate survival analysis models
3. Develop analytic skills through the analysis of data from the fields of medicine and public health.

Synopsis

This module covers methods for analysis of time-to-event data. These includes hazard, survivor, and cumulative hazard functions, Kaplan-Meier and actuarial estimation of the survival distribution, comparison of survival using log rank and other tests, regression models including the Cox proportional hazards model, adjustment for time-varying covariates, and use of parametric distributions (exponential, Weibull) in survival analysis. Class material will include presentation of statistical methods for estimation and testing, along with current software (Stata, SPSS, SAS) for implementing analysis of survival data. Applications of statistical methods will be emphasized.

Main References

1. Modelling Survival Data in Medical Research. Third Edition. Chapman & Hall/CRC Texts in Statistical Science. 2014
2. Survival Analysis: A Self-Learning Text. Second Edition. Springer. 2005
3. Modelling Survival Data in Medical Research (Chapman & Hall/CRC Texts in Statistical Science)
4. Modelling Survival Data in Medical Research. (Chapman & Hall/CRC Texts in Statistical Science) 3rd Edition. 2015

Assessment Methods

Continuous assessment: 100%

Final Examination: -

➤ **MQH7013: Field Attachment in Epidemiology (6 credits)**

Learning Outcomes

At the end of the course, the candidate is able to:

1. analyse issues and epidemiological problems in public health during attachment.
2. develop the plan of action and solutions for identified issues and epidemiological problems.
3. Appraise the hands-on and real life experience during the attachment.

Synopsis

This course provides hands-on and real life experience in epidemiology related to communicable and non communicable disease.

Main References

1. Pia D. M. MacDonald .Methods In Field Epidemiology. Jones and Bartlett Publishers, Inc. 2011
2. Lisa M. Lee(Editor) Principles and Practice of Public Health Surveillance, Oxford University Press Inc 2010
3. Johan Giesecke. Modern Infectious Disease Epidemiology, Taylor & Francis Ltd. 2017
4. Parveen Bhalla Evaluation of non-communicable diseases control strategies : Evaluation of strategies on NCDs, LAP Lambert Academic Publishing 2012

Assessment Methods

Continuous assessment: 100%
Final Examination: -

ELECTIVE COURSES

➤ **MQB7012: Producing Better Evidence (2 Credits)**

Learning Outcomes

At the end of the course, the candidate is able to:

1. Formulate a search strategy in relation to a specific problem statement.
2. Conduct systematic review that is relevance to a specific health problem.
3. Conduct meta-analysis.

Synopsis

The objective of this module is to train student on producing valid scientific evidence which can be used to modify policy or management standards. It contains the following:

Introduction to Evidence-based Practice, performing systematic search, critically appraising the literature / evidence, and performing meta-analysis. Systematic reviews and meta-analyses produce the highest hierarchy of evidence should be used to inform clinical decision-making and health care policy. The principles of meta-analytic statistical methods are reviewed, and the application of these to data sets is explored. Application of methods includes considerations for clinical trials and observational studies. The use of meta-analysis to explore data and identify sources of variation among studies is emphasized, as is the use of meta-analysis to identify future research questions.

Main References

1. Sharon Straus Paul Glasziou W. Scott Richardson R. Brian Haynes. Evidence-Based Medicine 5th Edition: How to Practice and Teach EBM. Elsevier 2019.
2. Carl Heneghan, Douglas Badenoch. Evidence-Based Medicine Toolkit, 2nd Edition. BMJ Books, 2006.
3. Trisha Greenhalgh. How to Read a Paper: The Basics of Evidence-based Medicine and Healthcare, 6th Edition. Wiley-Blackwell 2019.
4. Books L. Systematic Review: Meta-Analysis, Publication Bias, Systematic Review, Secondary Data, Thomas C. Chalmers, Cochrane Library, Funnel Plot: General Books LLC; 2010
5. Julian Higgins, James Thomas (editors). Cochrane Handbook for Systematic Reviews of Interventions Version 6.0. The Cochrane Collaboration, 2019.

Assessment Methods

Continuous assessment: 100%
Final examination: -

➤ **MQB7014: Health Economics (2 Credits)**

Learning Outcomes

At the end of the course, the candidate is able to:

1. Describe the economic concepts to the evaluation of performance of a health care system.

2. Describe economic evaluation tools to solve the problem of allocation in health services resources.
3. Evaluate national healthcare financing systems.

Synopsis

This course is designed to introduce students to the aims, concepts, theories and methods of economic analysis as well as to give an appreciation of how these methods are being applied to problems of resource allocation, management, evaluation and planning in health services.

Main References

1. Baumol W J, Blinder A S, Solow J L. 2020. Microeconomics. Principles and Policy. 14th Edition. Cengage.
2. Drummond MF, Sculpher MJ, Torrance GW, O'Brien B, Stoddart GL, 2015. Methods for the Economic Evaluation of Health Care Programmes. 4th Edition. Oxford. Oxford University Press.
3. Folland S, Goodman A, Stano M. 2017. The Economics of Health and Health Care. 8th Edition. Routledge.
4. Roberts MJ, Hsiao W, Berman P, Reich MR. 2008. Getting health reform right. New York: Oxford University Press.

Assessment Methods

Continuous assessment: 50%

Final examination: 50%

➤ MQB7027: Qualitative Inquiry in Public Health (2 Credits)

Learning Outcomes

At the end of the course, the candidate is able to:

1. Critically appraise qualitative research.
2. Perform interview in qualitative study.
3. Perform qualitative data analysis.

Synopsis

This unit is mainly concerned with the development of capacities and skills in using a range of qualitative research techniques in public health. It is expected that the students will be familiar with the theoretical foundations of qualitative research and common methods of data collection, sampling techniques, validity, ethical issues, and data analysis. The unit also seeks to enhance students' knowledge and skills to critically assess qualitative research by the end of the course.

Main References

1. Carol R. Bailey. A Guide to Qualitative Field Research (3rd ed.) SAGE Publications; 2017 ISBN: 9781506306988
2. Sharlene Hesse Biber. The Practice of Qualitative Research: Engaging Students in the Research Process. SAGE Publications Inc. 2016. ISBN10 1452268088
3. Howard Lune, Bruce Berg. Qualitative Research Methods for the Social Sciences, Global Edition. Pearson Education Limited, 2017. ISBN10 1292164395
4. Laura M. O'Dwyer & James A. Bernauer. Quantitative Research for Qualitative Researcher. SAGE Publication, Inc. 2016 DOI:<http://dx.doi.org/10.4135/9781506335674>

Assessment Methods

Continuous assessment: 100%

Final examination: -

➤ **MQB7033: Social Determinants of Health (2 Credits)**

Learning Outcomes

At the end of the course, the candidate is able to:

1. Describe social determinants of health and how each can impact health outcomes.
2. Examine pathways through which social determinants operate in different population groups.
3. Critique existing policy responses and structural interventions to promote health or reduce health inequalities.

Synopsis

Social epidemiology is the study of the distribution of health outcomes and their social determinants that contribute to or detract from the health of individuals and communities. This course will provide an overview of the social determinants of health which operate at different stages of the life course and in different population groups. Policy responses and interventions to promote health or reduce health inequality will also be introduced. The course also includes methodology and tools used in social epidemiology and health equity research.

Main References

1. Social Determinants of Health: A Comparative Approach; Alan Davidson; Oxford University Press; 2015
2. Social Causes of Health and Diseases; William Cockerham; Polity Press, University of London; 2nd edition; 2013
3. Lee JH, Sadana R.(ed). World Health Organization. 2011. Improving equity in health by addressing social determinants.
4. Religion as a Social Determinant of Public Health; Ellen L. Idler; Oxford University Press; 2014.
5. LGBT Health: meeting the needs of gender and sexual minorities; Smalley and Warren; Springer Publishing Company; 2017.
6. Solar O, Irwin A. A conceptual framework for action on the social determinants of health. Social Determinants of Health Discussion Paper 2 (Policy and Practice) 2010, World Health Organization

Assessment Methods

Continuous assessment: 100%

Final examination: -

➤ **MQB7040: Nutritional Epidemiology (2 credits)**

Learning Outcomes

At the end of the course, the candidate is able to:

1. Explain the strengths and limitations of different methods of dietary assessment.
2. Determine statistical methods commonly used in nutritional epidemiology to analyse diet-disease associations.
3. Explain the current state of epidemiological evidence for relationships of diet to the development of selected diseases.

Synopsis

This course is designed for candidates who are interested in better understanding and interpreting epidemiologic studies on the associations of diet and diseases. This course examines study designs, dietary assessment and statistical methods used in nutritional epidemiology, as well as to review the current evidence on diet and selected diseases.

Main References

1. Willett W. Nutritional epidemiology: Oxford University Press; 2013
2. Goldis L, Epidemiology: Elsevier/Sanders. 6th Edition; 2019.
3. Buttris JL et al. 2017. Public Health Nutrition. 2nd Ed. John Wiley & Sons.

Assessment Methods

Continuous assessment: 50%

Final Examination: 50%

Master of Epidemiology Programme Schedule

Semester	Description	Examination
Special Semester	▪ A research project of nine (9) credits	Project Report, Oral Presentation
Semester II	▪ Three (3) elective courses, each of two (2) credits, totalling six (6) credits; and	End of Semester II
	▪ Five (5) specialisation courses, each of three (3) credits, totalling fifteen (15) credits; and	
Semester I	▪ Four (4) core courses, each of three (3) credits, totalling twelve (12) credits.	End of Semester I
		Registration (Admission Evaluation)

Name of Programme	:	Master of Medical Science (Regenerative Medicine)
Mode	:	By Mixed Mode
Faculty	:	Faculty of Medicine

1. Classification of Programme

The Master of Medical Science (Regenerative Medicine) by Mixed Mode is a programme in which the credits for the research component comprises seventy (70%) percent or more of the total credits for the whole programme of study. After completion of the relevant programme of study specified in this Schedule, a candidate shall be eligible for the award of the Master of Medical Science (Regenerative Medicine) degree.

2. Entry Requirements

- (1) A Bachelor's degree of Medicine and Degree of Surgery or a Bachelor's Degree of Dental Surgery; or a professional qualification from a recognized professional body; or

A Bachelor's Degree of Science in the related field with a CGPA of not less than 3.0; or

A Bachelor's Degree of Science with a CGPA of not less than 3.0 and with at least one year working experience in the field of regenerative medicine.
- (2) Any other qualification as may be approved by the Senate from time to time;
- (3) With a CGPA of not less than 3.0 or equivalent;
- (4) Candidates with a Bachelor's Degree of CGPA 2.7 to 2.99 may be considered if they meet at least one of the following criteria:
 - (a) Have relevant work experience; Or
 - (b) Produce publications in related fields; Or
 - (c) Is a scholarship recipient; Or
 - (d) Graduates of the University of Malaya.
- (5) Candidates with a Bachelor's Degree of CGPA of 2.5 to 2.69 may be considered if they meet at least two of the criteria in (4).
- (6) Candidates with a Bachelor's Degree of CGPA 2.10 to 2.49 may be considered if they meet the following criteria as outlined in the guidelines provided by the Institute of Postgraduate Studies (IPS) that:
 - (a) Graduates of University of Malaya; And
 - (b) Have a working experience of not less than 5 years or have produced at least one publication in a refereed journal in the field of regenerative medicine; And
 - (c) Application of entry must be submitted to the Senate for consideration based on the merits of each case

Language Requirement

The Non-Malaysian applicant whose degree is from university or institution of higher learning that did not use English as the medium of instruction for that degree shall be required:

Type of English Qualifications		Minimum Score
International English Language Testing (IELTS)		6
Test of English as a Foreign Language (TOEFL)	IBT (Centre based)	60
	IBT Essentials	8.5
Pearson Test of Academic English (PTE)		59
Cambridge English Qualifications and Tests	B1 Preliminary, B2 First, C1 Advanced, C2 Proficiency	169
	Lingua skill Online	169
	Occupational English Test (OET) (Conventional/Online)	250

3. Duration of Study

- (1) The minimum duration of study shall be three (3) semesters
- (2) The maximum duration of study shall be eight (8) semesters

4. Structure of Programme

- (1) The Master of Medical Science (Regenerative Medicine) programme by Mixed Mode comprises forty eight (48) credits and consists of two parts, namely:
 - (1) Part I consisting of five (5) core courses totalling twenty (20) credits and one elective courses totalling four (4) credits;
 - (2) Part II involving research leading to the submission of a dissertation totalling twenty four (24) credits.
- (2) Details of the courses offered are as approved by Senate from time to time on the recommendation of the Faculty and candidates shall be informed of such details at the beginning of each session.
- (3) The lists of courses for the programme of Master of Medical Science (Regenerative Medicine) are provided in List 1.
- (4) Course grades are subjected to regulations prescribed in the Marking Scheme of the University of Malaya (Master's Degree) Rules 2019 and University of Malaya (Master's Degree)(Regulations 2019).

Programme Aim

To produce graduates who are knowledgeable, creative and innovative entrepreneurial and who can demonstrate a wide range of knowledge and practical skills as well as able to serve the society through the regenerative medicine industry

Program Educational Objectives (PEO)	
PEO 1	Graduates who establish themselves as a practicing professional in the field of regenerative medicine.
PEO 2	Graduates who engage in the lifelong pursuit of knowledge and interdisciplinary learning appropriate for regenerative medicine industries or academic careers.
PEO 3	Graduates who contribute to sustainable development and the well-being of society.

Programme Learning Outcomes (PLO)	
PLO1	Evaluate the knowledge pertaining to the discipline of medical Science in regenerative medicine.
PLO2	Apply practical skills for industry and/or research purposes in the discipline of medical Science in regenerative medicine.
PLO3	Integrate social skills and responsibility toward fellow humans and animals in the discipline of medical science in regenerative medicine.
PLO4	Develop and perform ideal core human values, attitudes and professionalism ethics in the discipline of medical science in regenerative medicine.
PLO5	Demonstrate communication skills, leadership abilities and qualities as well as team spirit in the discipline of medical science in regenerative medicine.
PLO6	Solve problems in a scientific manner to improve the quality of the discipline of medical science in regenerative medicine.
PLO7	Integrate skills for information gathering and lifelong learning in the discipline of medical science in regenerative medicine.

List 1

Code	Title	Credit Hours
MOB7001	Research Methodology	4
MOB7009	Dissertation	24
MOB7003	Stem Cell and Tissue Engineering	4
MOB7004	Advanced regenerative medicine	4
MOB7005	Cell Based Therapy and Regulation in Regenerative Medicine	4
MOB7006	Regenerative Medicine-Industry	4
MOB7007 (Elective)	Advance Tools in Regenerative Medicine	4
MOB7008 (Elective)	Advance Medical Biotechnology	4
Total		48

➤ **MOB7001: Research Methodology (4 credits)**

Learning Outcomes

At the end of the course, students are able to:

1. Adhere to the ethical requirement for basic science research in stem cells and tissue engineering.
2. Adhere to the ethical requirement for clinical research in stem cells and tissue engineering.
3. Relate the knowledge for the development of research concepts and design a research in a systematic and scientific way.
4. Organize the experiment design/pre-clinical/clinical trials.

Synopsis

In this course, the student will be taught about literature search (in the field of regenerative medicine), development of research concepts, research design, design experiment/pre-clinical/clinical trials, and basic data analysis, and ethics application. Student needs to submit a proposal, submit an ethics application, present for seminar and proposal. Besides, the student will also be taught on communication skills for clinical related research. Student will also needs to go for clinical attachment for practical communications session with clinician and patients. At the end of the semester, the student needs to sit for an oral exam.

Main Reference

1. Designs for Clinical Trials: Perspectives on Current Issues /edited by David Harrington. Springer eBooks, 2012.
2. Research ethics: A philosophical guide to the responsible conduct of research/edited by Gary L. Comstock. Cambridge: Cambridge University Press, 2012.
3. Biostatistics Decoded/Author: Oliveira, Antonio; John Wiley & Sons, 2013.
4. Regression Methods in Biostatistics: Linear, Logistic, Survival, and Repeated Measures Models /by Eric Vittinghoff, David V. Glidden, Stephen C. Shiboski, Charles E. McCulloch. Springer eBooks, 2012.
5. Research Methodology/ Peter Pruzan; Springer International Publishing, 2016.

Assessment Methods

Continuous Assessment: 80%

Final Examination: 20%

➤ **MOB7009: Dissertation (24 credits)**

Learning Outcomes

At the end of the course, students are able to:

1. Integrate/combine scientific theory and research practical skills for research purposes in stem cells and regenerative medicine or related fields.
2. Appraise based on the scientific theory and regulations in stem cells and regenerative medicine industry.
3. Master the practical skills in stem cells and regenerative medicine industry or research.
4. Adhere to the professionalism ethics in the basic science and/or clinical research in the discipline of regenerative medicine

Synopsis

This course module provide the students with an opportunity to conduct a research project within life science disciplines and/or related to clinical applications. The disertation will be a research-based study that will allow student to participate in and develop a current research area. This course module will help

students in developing their practical skills required for professional research, appraisal of knowledge, methods and data; data collection and comprehensive data analysis, interpretation and presentation, as well as self-learning and project management. The module is expected to draw on knowledge and skills developed throughout the modules in this programme to facilitate the demonstration of an integrated and multidisciplinary approach in research.

In this course, the student will conduct a research project, present research progress, compile and analyse data, write a dissertation, present the final findings at public (and viva voce).

Additional info: Students are encouraged to participate in projects either already underway within the subject areas of the Tissue Engineering Group (TEG), in the Department of Orthopaedic Surgery, Faculty of Medicine, UM. However, we may be able to help initiating new projects proposed by students, providing this falls within an area of staff research interest, appropriate for the course/programme and feasible in terms of budget and timeframe. Students are encouraged to seek academic advice on these matters. Individual specialist Supervisors will be selected from staff whose background and experience will allow them to make an effective contribution to identified projects.

The end-of-program examination will be held at the end of the semester and the candidate must PASS the final exam of the program and PASS in the continuous assessment of the dissertation.

Candidates should only sit and pass this examination once during this practice, if the candidate needs to register for the MOB7002 Dissertation course due to unsuccessful work done or the dissertation report has not been checked by the examiner.

Students must pass "Good Clinical Practice (GCP)" course organized by Clinical Investigation Center (CIC), UMMC, as one of the faculty requirement (for this program) during the candidacy in this program

Main Reference

1. How to Design, Write, and Present a Successful Dissertation Proposal / Author: Elizabeth A. Wentz Los Angeles; SAGE Publications Ltd, 2013.
2. Proposals that work: A guide for planning dissertations and grant proposals / Lawrence F. Locke, Waneen Wyrick Spirduso & Stephen J. Silverman. New York, NY. SAGE Publications Inc, 2013.
3. Biostatistics Decoded, / Author: Oliveira, Antonio; John Wiley & Sons, 2013.
4. Regenerative medicine and cell therapy/ edited by Hossein Baharvand, Nasser Aghdami, Springer eBooks, 2013.

Assessment Methods

Continuous Assessment: 50%

Final Examination: 50%

➤ MOB7003: Stem Cell and Tissue Engineering (4 credits)

Learning Outcomes

At the end of the course, students are able to:

1. Distinguish based on scientific theory the different types of stem cells and culture related techniques.
2. Compare and adapt the applications of different stem cells in tissue engineering.
3. Master the techniques of mesenchymal stem cells primary culture, sub-passaging, cryo-preservation, characterization and regrow the cryo-preserved MSCs

Synopsis

This course is designed to introduce students to the fundamental of stem cells biology and allow them to develop a detailed understanding of stem cells applications in current and future medicine. Students will be encouraged to develop a critical approach in evaluating different types of stem cells, in terms of properties, differentiation potential, applications (in regenerative medicine and other diseases) and limitations. In addition, students will also be introduced with the advances in genetically modified stem cells, biomaterials and their potential applications. Landmark scientific literature and key findings will be

discussed and reported to develop a sound understanding of the technology used in cell therapies. The first-hand experience of stem cell culture techniques and characterization tests will allow students an appreciation of some technical aspects involved in cell therapies and clinical scale cell production.

Main Reference

1. Stem Cells: Current Challenges and New Directions /edited by Kursad Turksen. Springer eBooks, 2013.
2. Stem Cells and Tissue Engineering /by Mirjana Pavlovic, Bela Balint. Springer eBooks, 2013.
3. Stem Cells Handbook, 2nd Edition. Editor: Stewart Sell. Springer eBooks, 2013.
4. Molecular biology techniques: a classroom laboratory manual /by Susan Carson, Heather Miller, D. Scott Witherow. 3rd ed. ; Oxford; Waltham, MA: Academic,2012.
5. Advances in Stem Cell Research /edited by Hossein Baharvand, Nasser Aghdami. Springer eBooks, 2012

Assessment Methods

Continuous Assessment: 45%

Final examination: 55%

➤ MOB7004: Advanced Regenerative Medicine (4 credits)

Learning Outcomes

At the end of this course, students are able to:

1. Evaluate regenerative medicine with related fields including biomaterials, basic immunology mechanism underpinning the rejection of transplanted tissue or organs, and cell based therapy of several diseases.
2. Demonstrate mesenchymal stem cell seedings to different biofuels and basic characterization techniques, which comply with industry regulations/legislation/requirements.
3. Compare mesenchymal stem cell seedings to different biofuels and basic characterization techniques, which comply with industry regulations/legislation/requirements.

Synopsis

This course module will provide students with a detailed understanding of cell-based therapies and tissue engineering. In this module, you will be provided with insights into current and future cell therapies and techniques of tissue engineering.

This course focuses on advances in biomaterials and tissue engineering; cell biology for regenerative medicine; applications of regenerative medicine in cartilage, bone, tendon, blood vessel, liver, cardiovascular tissue engineering; cell and organ transplantation; molecular basis of transplantation; basic mechanism of immunology and those related to cell or organ transplantation; and prospects of tissue engineering and regenerative medicine..

Main References

1. Engineering Biomaterials for Regenerative Medicine: Novel Technologies for Clinical Applications / edited by Sujata K. Bhatia. Springer eBooks, 2012.
2. Biodegradable Polymer-Based Scaffolds for Bone Tissue Engineering /by Naznin Sultana. Springer eBooks, 2013.
3. The Immunological Barriers to Regenerative Medicine /edited by Paul J. Fairchild. Springer eBooks, 2013.
4. Regenerative Medicine and Cell Therapy /edited by Hossein Baharvand, Nasser Aghdami. Springer eBooks, 2013.
5. Stem cells and regenerative medicine. Volume VII, Diseases and therapy / Philippe Taupin. New York: Nova Science Publishers, Inc., 2012.

Assessment Methods

Continuous Assessment: 65%

Final Examination: 35%

➤ **MOB7005: Cell Based Therapy and Regulation in Regenerative Medicine (4 credits)**

Learning Outcomes

At the end of the course, students are able to:

1. Value the regulations and legislation in clinical applications of products related to tissue engineering and cell based therapy.
2. Compare the regulations and legislation in clinical applications of products related to tissue engineering and cell based therapy.
3. To identify and integrate the regulatory requirements in the development of tissue engineering and cell based therapy products.
4. Adapt to the industry environment which adhere to the regulations and legislation.

Synopsis

This course introduces students to the regulations and legislations related to cell based therapy. This course consist of the current regulatory framework for cell based therapy in Malaysia and other countries. This course also covers the legal unit/entiti which enforce the regulations and legisltion in the development fo regenerative medicine related products as well as regenerative medicine industries. This course also addresses the healthcare economics which is related to the regenerative medicine industry, under the regulations and legislations associated with tissue engineering and cell based therapy.

Throughout this course, student need to do laboratories visits (GMP and GLP accredited laboratories) as well as industries attachments.

Main Reference

1. Regenerative Medicine and Cell Therapy /edited by Hossein Baharvand, Nasser Aghdami. Springer eBooks, 2013.
2. Stem Cells Handbook, 2nd Edition. Editor: Stewart Sell. Springer eBOOKs, 2013.
3. Stem cells and regenerative medicine. Volume VII, Diseases and therapy / Philippe Taupin. New York: Nova Science Publishers, Inc., 2012.
4. Mesenchymal Stem Cell Therapy /edited by Lucas G. Chase, Mohan C. Vemuri. Springer eBooks, 2013.

Assessment Methods

Continuous Assessment: 85%

Final Examination: 15%

➤ **MOB7006: Regenerative Medicine-Industry (4 credits)**

Learning Outcomes

At the end of the course, students are able to:

1. Relate the industrial scale and standard requirements for products of tissue engineering and cell based therapy.
2. Integrate the knowledge of the regenerative medicine to the industry of biomedical engineering.

Synopsis

In this module, the student will be exposed to the knowledge in the aspect of regenerative medicine industry, such as biomaterials for regenerative medicine industry, facility/industry regulation, economic evaluation and health economic for regenerative medicine.

In this module, there will be an opportunity for industrial placement for five weeks, within a biomedical engineering company or regenerative medicine industry specifying in the aspect of tissue engineering and cell based therapy.

No finance assistance will be available to cover travel expenses to the location of the industry placement.

Main Reference

1. Engineering Biomaterials for Regenerative Medicine: Novel Technologies for Clinical Applications / edited by Sujata K. Bhatia. Springer eBooks, 2012.
2. Regenerative biology and medicine /David L. Stocum. 2nd ed.; Amsterdam: Elsevier/ Academic Press, On ScienceDirect® e-Books, 2012.
3. Tissue engineering and regenerative medicine: a nano approach/ edited by Murugan Ramalingam ... [et al.]. Boca Raton, FL.: CRC Press, 2013.
4. Biologically Responsive Biomaterials for Tissue Engineering /edited by Iulian Antoniac. Springer eBooks, 2013.
5. Biomimetics: advancing nanobiomaterials and tissue engineering bonded systems / edited by Murugan Ramalingam, Xiumei Wang, Guoping Chen, Peter Ma, and Fu-Zhai Cui. Hoboken, NJ: John Wiley & Sons, Inc., 2013.

Assessment Methods

Continuous Assessment: 80%

Final Examination: 20%

➤ **MOB7007: Advance Tools in Regenerative Medicine (4 credits)**

Learning Outcomes

At the end of the course, students are able to:

1. Compare the advantages and limitations of advance analysis tools for applications in stem cells and tissue engineering research.
2. Integrate the advantages and limitations of advance analysis tools for applications in stem cells and tissue engineering research.
3. Integrate the use of advance analysis tools in the analysis in stem cells and tissue engineering research.

Synopsis

This module covers the theoretical knowledge and experience of the core iotechnology laboratory techniques used to carry out experimental research within the medical biotechnology and tissue engineering. This module is based on a series of practical sessions and will give students experience of performing experimental work, collecting data and interpreting and presenting results.

Main Reference

1. Stem Cells Handbook, 2nd Edition. Editor: Stewart Sell. Springer eBOOKs, 2013.
2. Integrated biomaterials in tissue engineering / edited by Murugan Ramalingam, Ziyad Haidar, Youssef Haikel. Hoboken, N.J.: John Wiley & Sons; Salem, Mass.: Scrivener Pub., c2012.
3. Molecular biology techniques: a classroom laboratory manual /by Susan Carson, Heather Miller, D. Scott Witherow. 3rd ed.; Oxford; Waltham, MA: Academic,2012.
4. Molecular Imaging: Fundamentals and Applications /by Jie Tian. Springer eBooks, 2013.
5. Stem Cell Transplantation / edited by Carlos López-Larrea, Antonio López-Vázquez, Beatriz Suárez-Álvarez, Springer Science, eBook, 2012.

Assessment Methods

Continuous Assessment: 55%

Final Examination: 45%

➤ MOB7008: Advance Medical Biotechnology (4 credits)

Learning Outcomes

At the end of the course, students are able to:

1. Compare the advantages and limitations of advance biotechnology tools for regenerative medicine research applications based on theory.
2. Compare the advantages and limitations of advance biotechnology tools for regenerative medicine research applications based on practical.
3. To integrate advance biotechnology tools in regenerative medicine study.

Synopsis

This module covers the theoretical knowledge and experience of the core biotechnology techniques used to carry out experimental research within the regenerative medicine. This module is based on a series of practical sessions and will give students experience of performing experimental work, collecting data and interpreting and presenting results.

Main Reference

1. Engineering Biomaterials for Regenerative Medicine: Novel Technologies for Clinical Applications / edited by Sujata K. Bhatia. Springer eBooks, 2012.
2. Regenerative biology and medicine /David L. Stocum. 2nd ed.; Amsterdam: Elsevier/ Academic Press, On ScienceDirect® e-Books, 2012.
3. Tissue engineering and regenerative medicine: a nano approach/ edited by Murugan Ramalingam ... [et al.]. Boca Raton, FL.: CRC Press, 2013.
4. Biologically Responsive Biomaterials for Tissue Engineering /edited by Iulian Antoniac. Springer eBooks, 2013.
5. Biomimetics: advancing nanobiomaterials and tissue engineering bonded systems / edited by Murugan Ramalingam, Xiumei Wang, Guoping Chen, Peter Ma, and Fu-Zhai Cui. Hoboken, NJ: John Wiley & Sons, Inc., 2013.

Assessment Methods

Continuous Assessment: 55%

Final Examination: 45%

**Master of Medical Science
(Regenerative Medicine)
Programme Schedule**

Semester I	<ul style="list-style-type: none"> ▪ Four (4) core courses, each of four (4) credits, totalling sixteen(16) credits.
Semester II	<ul style="list-style-type: none"> ▪ A medical science research dissertation project of twelve (12) credits. ▪ One (1) Core course, each of four (4) credits, totalling four (4) credits. ▪ One (1) Elective course, each of four (3) credits, totalling four (4) credits. ▪ A medical science research disssertation project of twelve (12) credits (Progressive, P). A candidate may only register for medical sciences research project after he/she has completed MOB7001 Research Methodology course.
Semester III	<ul style="list-style-type: none"> ▪ A medical science research disssertation project of twelve (12) credits. ▪ A candidate may proceed to End-of-Program Examination (EoP), if he/she has completed all courses and passed their PD and CD.

Name of Programme : Master of Medical Science
Mod : By Research
Faculty : Faculty of Medicine

(3) Classification of Programme

The Master of Medical Science by Research is a programme in which the research component comprises one hundred (100) percent of the programme of study.

(4) Entry Requirements

The qualification for admission into the Degree programme of study are as follows:

- (5) The degrees of Bachelor of Medicine and Bachelor of Surgery or the degree of Bachelor of Dental Surgery; or
- (6) The Bachelor degrees in the relevant sciences field of the University and a CGPA of not less than 3.0 or equivalent; or
- (7) An equivalent qualification approved by the Senate from time to time.

Language Requirement

The Non-Malaysian applicant whose degree is from university or institution of higher learning that did not use English as the medium of instruction for that degree shall be required:

Type of English Qualifications		Minimum Score
International English Language Testing (IELTS)		6
Test of English as a Foreign Language (TOEFL)	IBT (Centre based)	60
	IBT Essentials	8.5
Pearson Test of Academic English (PTE)		59
Cambridge English Qualifications and Tests	B1 Preliminary, B2 First, C1 Advanced, C2 Proficiency	169
	Lingua skill Online	169
	Occupational English Test (OET) (Conventional/Online)	250

3. Duration of Study

- (1) The minimum duration of study shall be two (2) semesters
- (2) The maximum duration of study shall be eight (8) semesters

4. Structure of Programme

(1) Dissertation:

This programme is a research programme leading to the submission of a dissertation and the format is as provided in the University of Malaya (Master's Degree) Rules 2019 and University of Malaya (Master's Degree) Regulations 2019.

(1) Research Methodology (MMX7001) (3 credits):

- (a) Candidate must successfully complete Research Methodology Course (MMX7001) within the first two (2) semesters of registering as a student at University of Malaya.
- (b) The candidate must pass their proposal defense seminar by the second semester

Programme Education Objectives (PEO)	
PEO1	Graduates will be trained to contribute towards the field of medical sciences.
PEO2	Graduates will work within a team to pioneer research in the field of medical sciences as a skilled researcher
PEO3	Graduates will communicate and disseminate their research findings in the field of medical sciences ethically and professionally

Programme Learning Outcome(s) (PLO)	
PLO1	Demonstrates expertise in the field of medical science research
PLO2	Apply practical skills in the field of medical science research
PLO3	Relate societal issues with medical science research
PLO4	Perform medical sciences research with independent supervision and adheres to the laws, ethics and professional code of practice
PLO5	Communicate research findings effectively, in written and oral format, to the community and in scientific journals in the field of medical sciences
PLO6	Problem-solve using scientific skills and critical thinking
PLO7	Manage information from medical science research and participates in lifelong learning activities

➤ **MMX7001: Research Methodology (3 credits)**

Course Learning Outcomes

At the end of the course, students are able to:

1. Formulate the problem statement, research questions and / or hypotheses.
2. Critically appraise relevant literature from authoritative sources within respective research field.
3. Design appropriate research methods for their respective projects.

Synopsis

This course is designed to provide knowledge and skills to candidates regarding conducting research projects. The course consists of an overview of skills required for designing research proposals, conducting literature review, selecting appropriate research methods, writing reports and thesis, considering ethical issues, plagiarism and the use of the Turnitin software – statistical measures and the relevant use of analysis software.

Main Reference

1. Stewart A. Basic Statistics and Epidemiology: A Practical Guide: Radcliffe Publishing; 2010.
2. Toto R, McPhaul M. Clinical Research: From Proposal to Implementation: Lippincott Williams & Wilkins; 2010.
3. Chinna K, Choo WY, Krishnakumari K. Statistical Analysis Using SPSS: Pearson Malaysia Sdn Bhd; 2012.
4. Guide for the Care and Use of Laboratory Animals (NRC 2011), National Academy of Sciences (8th Edition)
5. World Health Organization. Laboratory Biosafety Manual, 3rd Edition, 2004. <http://www.who.int/csr/resources/publications/biosafety/Biosafety7.pdf>
6. U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institutes of Health. Biosafety in Microbiological and Biomedical Laboratories, 5th Edition, 2009. <http://www.cdc.gov/biosafety/publications/bmbl5/BMBL.pdf>

Assessment Weightage

Continuous Assessment: 100%

Final Examination: -

Name of Programme	:	Doctor of Philosophy
Mode	:	Research
Faculty	:	Faculty of Medicine

The Doctor of Philosophy by Research is a programme in which the research component comprises one hundred (100) percent of the programme of study.

1. Entry Requirements

(1) Admission requirements for the programme of Doctor of Philosophy by Research are as follows:

- (a) Master's Degree by Research;
 - (b) Clinical Master's Degree;
 - (c) Master's Degree by Coursework or Mixed Mode with a CGPA of not less than 3.7;
 - (d) Master's Degree by Coursework or Mixed Mode with a CGPA of 2.00 to AND qualification of a Bachelor's degree with a CGPA of not less than 3.00;
 - (e) Master's Degree by Coursework or Mixed Mode with a CGPA of not less than 3.00 to 3.69 and APEL (A) qualification or other qualification approved by the Senate; or
 - (f) Master's Degree by Coursework or Mixed Mode with a CGPA of 2.00 to 3.69 AND qualification of a Bachelor's degree with a CGPA of 2.50 to 2.99 may be considered if meets at least one (1) of the following criteria:
 - (i) has relevant work experience;
 - (ii) has produced publications in the relevant fields;
 - (iii) is a scholarship recipient;
 - (iv) is a graduate of the University of Malaya;
 - (v) is a government agency staff;
 - (vi) Passed the interview conducted by the Faculty; or
 - (vii) Passed the Faculty's special assessment.
- or
- (e) Master's Degree by Coursework or Mixed Mode with a CGPA of 2.00 to 3.69 and qualification of a Bachelor's degree with a CGPA of 2.00 to 2.49 may be considered if meets at least one (1) of the following criteria if he is a UM graduate or two (2) criteria if he is not a UM graduate listed below:
 - (i) possesses related working experience not less than five (5) years;
 - (ii) published at least one (1) publication in a refereed journal in the related field;
 - (iii) Passed the interview conducted by the Faculty; or
 - (iv) Passed the Faculty's special assessment.

Language Requirement

The Non-Malaysian applicant whose degree is from university or institution of higher learning that did not use English as the medium of instruction for that degree shall be required:

Type of English Qualifications		Minimum Score
International English Language Testing (IELTS)		6
Test of English as a Foreign Language (TOEFL)	IBT (Centre based)	60
	IBT Essentials	8.5
Pearson Test of Academic English (PTE)		59
Cambridge English Qualifications and Tests	B1 Preliminary, B2 First, C1 Advanced, C2 Proficiency	169
	Lingua skill Online	169
	Occupational English Test (OET) (Conventional/Online)	250

2. Duration of study

- (1) The minimum duration of study shall be four (4) semesters.
- (2) The maximum duration of study shall be twelve (12) semesters.

3. Structure of Programme

i. Thesis:

To supplicate for the degree of Doctor of Philosophy, a candidate shall submit a thesis (not more than 100,000 words) which must be original work on a subject approved by the Senate on the recommendation of the Faculty and at the discretion of the examiners be examined in such manner as the examiners think fit on the subject matter of the thesis and related subjects;

A candidate may not submit this thesis earlier than twenty four (24) months nor later than five (5) years after the date of his initial registration except with the approval of the Senate.

ii. Research Methodology (MVX8001) (3 credits):

- (a) Candidate must successfully complete Research Methodology Course (MVX8001) within the first two (2) semester of registering as a student at University of Malaya.
- (b) Pass Proposal Defense by Semester II.

Programme Education Objectives (PEO)	
PEO1	Advancing innovation in research and work practices.
PEO2	Leading research as researcher and / or practitioners with national and / or international expertise.
PEO3	Disseminate research results and/or provide expert advice in an ethical and professional conduct.

Programme Learning Outcomes (PLO)	
PLO 1	Synthesize and contribute knowledge in their respective field of research.
PLO 2	Adapt practical skills and appropriate research methods towards innovative research.
PLO 3	Disseminate the importance and implications of research in national and international context.
PLO 4	Conduct independent research and adhere to legal, ethical and / or code of professional practice.
PLO 5	Demonstrate leadership quality through effective communication and collaboration among researchers and stakeholders.
PLO 6	Address research issues using critical thinking, problem solving and / or appropriate scientific skills.
PLO 7	Integrate information for lifelong learning.

➤ **MVX8001: Research Methodology (3 credits)**

Course Learning Outcomes

At the end of the course, students are able to:

- (1) Formulate the problem statement, research questions and / or hypotheses.
- (2) Critically appraise relevant literature from authoritative sources within respective research field.
- (3) Design appropriate research methods for their respective projects.

Synopsis

This course is designed to provide knowledge and skills to candidates regarding conducting research projects. The course consists of an overview of skills required for designing research proposals, conducting literature review, selecting appropriate research methods, writing reports and thesis, considering ethical issues, plagiarism and the use of the Turnitin software – statistical measures and the relevant use of analysis software.

Main Reference

- (1) Stewart A. Basic Statistics and Epidemiology: A Practical Guide: Radcliffe Publishing; 2010.
- (2) Toto R, McPhaul M. Clinical Research: From Proposal to Implementation: Lippincott Williams & Wilkins; 2010.
- (3) Chinna K, Choo WY, Krishnakumari K. Statistical Analysis Using SPSS: Pearson Malaysia Sdn Bhd; 2012.
- (4) Guide for the Care and Use of Laboratory Animals (NRC 2011), National Academy of Sciences (8th Edition)
- (5) World Health Organization. Laboratory Biosafety Manual, 3rd Edition, 2004.
- (6) <http://www.who.int/csr/resources/publications/biosafety/Biosafety7.pdf>
- (7) U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institutes of Health. Biosafety in Microbiological and Biomedical Laboratories, 5th Edition, 2009. <http://www.cdc.gov/biosafety/publications/bmbl5/BMBL.pdf>

Assessment Weightage

Continuous Assessment: 100%

Final Examination: -

Name of Programme : Doctor of Public Health
Mode : By Mixed Mode
Faculty : Faculty of Medicine

1. Classification of Programme

The Doctor of Public Health programme is a mix mode programme (coursework and research) which the credits for the coursework component comprise less than thirty (30) percent of the whole programme of study. After completion of the relevant programme of study specified in this Schedule, a candidate shall be eligible for the award of the Doctor of Public Health degree.

2. Entry Requirements

- (1) Master's in Public Health with a CGPA of not less than 3.00 or its equivalent; and
- (2) Possess a Bachelor of Medicine and Surgery or other equivalent medical doctorate from a recognized university; and
- (3) Has relevant work experience of at least one year or for a period as stipulated by the Department from time to time.

Language Requirement

The Non-Malaysian applicant whose degree is from university or institution of higher learning that did not use English as the medium of instruction for that degree shall be required:

Type of English Qualifications		Minimum Score
International English Language Testing (IELTS)		6
Test of English as a Foreign Language (TOEFL)	IBT (Centre based)	60
	IBT Essentials	8.5
Pearson Test of Academic English (PTE)		59
Cambridge English Qualifications and Tests	B1 Preliminary, B2 First, C1 Advanced, C2 Proficiency	169
	Lingua skill Online	169
	Occupational English Test (OET) (Conventional/Online)	250

3. Duration of Study

- (1) The minimum duration of study shall be six (6) semesters.
- (2) The maximum duration of study shall be twelve (12) semesters.

4. Structure of Programme

The Doctor of Public Health programme of study with a total of 114 credit hours comprises the two following parts:

- (1) Part 1 which consists of core courses with a total of 34 credits.
- (2) Part 2 which consists of research that leads to a thesis of 80 credits.

A candidate must successfully complete Part 1 before he is allowed to proceed to Part 2.

A candidate shall attain a minimum of grade B in all Core Courses.

- (3) The list of courses for the programme of Doctor of Public Health is provided in List 1.

Programme Aim

To create leaders in the field of public Health

Programme educational objectives (PEO)	
PEO 1	Graduates establish themselves as public health consultants.
PEO 2	Graduates lead in research, policy development, and planning and implementation of public health programs.
PEO 3	Graduates engage in advocacy and advancement of public health.

Programme Learning Outcomes (PLO)	
PLO1	Demonstrate in-depth knowledge of public health.
PLO 2	Incorporate cultural, social, behavioural and biological differences in the planning and development of public health programmes at various level to investigate and mitigate risk to population health.
PLO 3	Synthesize public health approaches in conducting surveillance, situational analysis, health promotion program, managing public health emergencies, and addressing population health.
PLO 4	Advocate for timely effective action in response to important public health issues.
PLO 5	Develop solutions to address health priorities using statistics, digital and scientific skills
PLO6	Demonstrate leadership, autonomy, and responsibility in the practice of public health.
PLO7	Integrate knowledge for lifelong learning with development of new ideas and solutions to improve population health.
PLO8	Practice ethics and professionalism in conducting public health activities.

List 1

List of Courses

PART 1 - CORE COURSES		
Course Code	Course Title	Credits
MWA8001	Advanced Research Method	3
MWA8005	Health Policy and Leadership	3
MWA8041	Professional Internship	3
MWA8035	Epidemiological Methods and Practice in Public Health	3
MWA8036	Safety, Health and Human Resource Management	3
MWA8037	Advanced Data Analysis	3
MWA8038	Epidemiology of Diseases	3
MWA8039	Social and Behavioural Sciences in Public Health Practices	3
MWA8040	Public Health Attachment	10

PART 2 - THESIS		
Course Code	Course Title	Credits
MWA8042	Thesis	80

CORE COURSES

➤ MWA8001: Advanced Research Methods (3 credits)

Learning Outcomes

At the end of this course, the candidate is able to:

1. Evaluate the various methods of data collection, questionnaire design, data management, data analysis utilising quantitative and/or qualitative research design to develop a research proposal.
2. Apply ethical issues in conducting research.
3. Produce a research proposal.

Synopsis

This course aims to further develop students understanding on the principles, concepts and methods of public health and health service research. The content of this course covers the theoretical considerations and practical steps of planning, impelmentation of research as well as the ethical principles and challenges of conducting research. In this course, higher level methods of appraisal and review of literature will be discussed. More complex form of study design will be examined in-depth with consideraton of both qualitative and quantitative methods. Students will be guided to develop the skills required to disseminate research plans and findings in a range of contexts.

Individual discussions with supervisor are mandatory in order to complete this course.

Main References

1. Guest G, Namely E. Public Health Research Methods. Sage Publishing; 2015
2. Szklo M, Nieto FJ. Epidemiology Beyond the Basics. Jones and Bartlett Publishers; 2014
3. Creswell JW. Research Design Qualitative, Quantitative and Mixed Method Approaches. Sage Publishing; 2018, 5th Edition
4. Amdur R, Bankert E. Institutional Review Board: Member Handbook: Jones & Bartlett Publishers; 2011
5. Liamputtong P. Research Methods in Health: Foundations for Evidence-Based Practice. Oxford University Press, 2017
- Gough, D. Oliver, S. and Thomas, J. An introduction to systematic reviews. London: Sage; 2012

Assessment Methods

Continuous Assessment: 100%

Final Examination: -

➤ MWA8042: Thesis (80 credits)

Learning Outcomes

At the end of this course, the candidate is able to:

1. Demonstrate a critical understanding of situational analysis, research, health policy, project management within the context of public health setting.
2. Demonstrate the synthesis of knowledge based on critical appraisal of a situation, definition of a research problem, collection and analysis of relevant primary or secondary data, and the interpretation of these findings.
3. Produce a thesis relevant to his/her research problem.

Synopsis

The DrPH thesis is the final academic test of candidate's competency addressing a practical problem confronting a leader in public health practice. The focus of the programme is on the scholarship of application and translation of health practice. This module requires candidate to apply key features of the taught curriculum to improve understanding of an important public health-related issue. The thesis will demonstrate candidate's mastery of skills and knowledge needed to lead a health-related programme, suggest change in the guideline or policy and/or develop new methods to accomplish the stated goals. The thesis must be based on original research, worthy of publication and acceptable to the department.

Main References

1. Bowling, A. 4th Edition, (2014) Research Methods in Health: Investigating Health and Health Services, Open University Press.
2. Fink A (2005) Conducting Research Literature Reviews (second edition). Sage: London
3. Rothman, K.J. (2002). Modern Epidemiology (2nd Edition). Philadelphia, PA: Lippincott-Raven
4. Rose, G. (1993). The Strategy of Preventive Medicine. Oxford: Oxford University Press
5. Detels Rogers, McEwen James, Beaglehole Robert, and Tanaka Heizo (2002) Oxford Textbook of Public Health. Oxford. Oxford University Press

Assessment Methods

Final Examination: 100%

➤ MWA8005: Health Policy and Leadership (3 credits)

Learning Outcomes

At the end of this course, the candidate is able to:

1. Evaluate the different process involved in the formulation of health policies and the impact of health policies on performance of health systems.
2. Evaluate type of leadership skills required in public and private health sectors.

Synopsis

An introductory course on the study of public policy & leadership. It explains the basis, development and importance to public health, rules and regulations formulation and its impact on organisation and community. The student will also be exposed to the role of advocacy (persuasion) which is used to convince policy makers (governments) on its adoption. The role of good leadership in public health practitioner will also be explored in this activity.

Main References

1. Gopee N, Galloway J. 2017. Leadership and management in healthcare 3rd edition. Sage Publications
2. Buse K, Mays N, Walt G. 2012. Making Health Policy. 2nd edition. UK: McGraw-Hill Education.
3. Roberts MJ, Hsiao W, Berman P, Reich MR. 2004. Getting health reform right. New York: Oxford University Press.
4. Chee HL, Barraclough S (eds). 2007. Health care in Malaysia. The dynamics of provision, financing and access. Oxford. Routledge.

Assessment Methods

Continuous assessment: 50%

Final Examination: 50%

➤ MWA8041: Professional Internship (3 credits)

Learning Outcomes

At the end of this course, the candidate is able to:

1. Develop contractual learning for the professional internship based on situational analysis.
2. Critically Appraise the structure and role of the organisation in the delivery of public health programmes in the community.
3. Critically appraise the relationship of the organisation with communities, and civil societies in the formulation of policy and implementation of public health programmes.
4. Develop interpersonal communication skills in establishing and maintaining relationships with the organisational staff members.

Synopsis

The professional internship is design for the candidates to experience and practice what was taught during the core courses. It is the basis for the understanding of the development and importance to public health, rules and regulations formulation and its impact on organisation and community. The candidate will experience the role of advocacy (persuasion) which is used to convince policy makers (governments) on its adoption. Practicing good leadership and management of public health system.

Main References

1. World Health Organization. Regional Office for the Western Pacific. Malaysia health system review. Manila: WHO Regional Office for the Western Pacific. 2012-
<https://apps.who.int/iris/handle/10665/206911>
2. Gerard A. Berlanga, Brock C. Husby. Lean Daily Management for Healthcare Field Book, 1st Edition, 2017.
3. Goodwin N. Leadership in Healthcare, Routledge, Abingdon, Oxford, UK 2006.
4. Harrison MI. Implementing Change in Health Systems. SAGE Publications, London, UK 2004.
5. Abdul Hamid AK. Medical Ethics, Etiquette and Law. University Malaysia Press, Kuala Lumpur 2006.

6. Yadav H. Hospital Management. University Malaya Press, Kuala Lumpur 2006.
7. Ghani SN, Yadav H. Health Care in Malaysia. University Malaya Press, Kuala Lumpur 2008.

Assessment Methods

Continuous Assessment: 100%

Final Examination: -

➤ MWA8035: Epidemiological Methods and Practise in Public Health_(3 credits)

Learning Outcomes

At the end of this course, the candidate is able to:

1. Synthesize the important elements of epidemiological research contributing to inference making in public health.
2. Communicating epidemiological evidence using appropriate strategies to diverse audiences.
3. Apply principles and methods of epidemiology in solving public health problems.

Synopsis

This course will provide an orientation to epidemiology as a basic science for public health as it holds a central role because “of its population focus and quantitative methods”. The course intends to provide an insight into the core functions of epidemiology namely public health surveillance, field investigation, analytic studies, evaluation, and linkages.

Main References

1. Yu-Kang Tu, Darren C.Greenwood: Modern Methods for Epidemiology, Springer (e-Book). 2012
2. Hernán MA, Robins JM: Causal Inference: What If, Boca Raton: Chapman & Hall/CRC. 2020
3. Principles of Epidemiology in Public Health Practice, An Introduction to Applied Epidemiology and Biostatistics, Centers for Disease Control and Prevention 3rd edition, 2012.

Assessment Methods

Continuous Assessment: 100%

Final Examination: -

➤ MWA8036: Safety, Health and Human Resource Management (3 credits)

Learning Outcomes

At the end of this course, the candidate is able to:

1. Determine the appropriate methods and principles in planning of human resources in healthcare organisations.
2. Evaluate an organisation's management system for the safety and health.

Synopsis

This course will provide the candidate the knowledge on the safety, occupational health management system and Human resource in healthcare organisations. The course will include the planning and implementation of the system in an organisation.

Main References

1. Human Resource Management Practices for Promoting Sustainability, Vivence Kalitany, IGI global 2021
2. Armstrong's Handbook of Human Resource Management Practice, 15th Revised edition, Michael Armstrong, and Stephen Taylor, 2020.

3. Human Resources and Change Management for Safety Professionals (Occupational Safety & Health Guide Series) 1st Edition, Edition Thomas D. Schneid , Shelby L. Schneid CRC 2019
4. British Standard Institution. Occupational health and safety management systems. Guidelines for the implementation of OHSAS 18001:2015. BSI.
5. Occupational Safety and Health Act 1994 and Regulations. Laws of Malaysia. International Law Book Services 2011
6. Factories and Machinery Act 1967 (Act 139) & regulations and rules: Malaysia. Kuala Lumpur: International Law Book Services, 2013.
7. The World Health Report. Working Together for Health, WHO, 2006.
8. Yadav, H. Hospital Management. University of Malaya Press, Kuala Lumpur, 2006.
9. McMahon R., Barton E., Piot M. On Being in-Charge: A guide to management in primary health care; WHO, Geneva, 2007.
10. Gopee N., Galloway J. Leadership and Management in Healthcare; Sage Publications Ltd. London, 2nd Edition, 2014.
11. Fred Lee. If Disney Ran Your Hospital. Second River Healthcare, 2008.

Assessment Methods

Continuous Assessment: 100%

Final Examination: -

➤ MWA8037: Advanced Data Analysis (3 credits)

Learning Outcomes

At the end of this course, the candidate is able to:

1. Critical review of multivariate analysis scientific literature for various health occurrences.
2. Develop advanced statistical analysis plan for analyzing of various measures of health occurrences.
3. Execute various analysis measures of health occurrences according to research design.

Synopsis

This module provides a comprehensive analysis of health data particularly in the area of public health. Variety of analyses according to public health issues are introduced and discussed. This module also covers how to handle important variables such as confounding, interaction and mediation in the analysis. Methods of modelling longitudinal data and missing data are introduced. Analysis of validity and reliability if questionnaire will be emphasized.

Main References

1. Statistical Regression Modeling with R: Longitudinal and Multi-level Modeling (Emerging Topics in Statistics and Biostatistics). 1st Edition. Springer. 2021.
2. Timothy L Lash, Tyler J VanderWeele, Sebastien Haneuse, Kenneth J Rothman. Modern Epidemiology. 4th Edition. Wolters Kluwer Health Lippincott Williams & Wilkins. 2021
3. Jos WR Twisk. Applied Longitudinal Data Analysis for Epidemiology: A Practical Guide. 2nd Edition. Cambridge University Press. 2013

Assessment Methods

Continuous assessment: 100%

Final examination: -

➤ MWA8038: Epidemiology of Diseases (3 credits)

Learning Outcomes

At the end of this course, the candidate is able to:

1. Propose solutions to measure exposure, susceptibility and disease outcomes in epidemiological studies of diseases by understanding the molecular biomarkers.
2. Demonstrate specialist skill in solving public health problem by applying the principles of life course approach to the epidemiology of diseases.
3. Demonstrate professional ability in proposing a potential solution to the current global burden of disease and appraising the public health interventions that have evolved to reduce its impact.

Synopsis

The course is designed to provide an in-depth understanding on the epidemiology of several important non-communicable diseases and conditions. The focus of this course is provide an overview of the importance and trends in non-communicable diseases globally, identify the major determinants of non-communicable diseases, identify methodological and conceptual issues and challenges to the study of non-communicable diseases including limits of observational evidence, construction of conceptual frameworks in life-course epidemiology as well as challenges in the control of these diseases.

This course also provides a broad introduction to the epidemiology, prevention and control of the major communicable (including emerging and re-emerging) diseases. The One Health approach in the management of disease outbreak and the application of disease modelling in infectious diseases will be introduced.

Main References

1. Randall H. Epidemiology of Chronic Diseases Global Perspective, Jones and Bartlett Publishers; 2013
2. Remington P, Brownson R, Wegner M. Chronic Disease Epidemiology - Prevention and Control. APHA Press, 2016, 4th Edition
3. Resources from the WHO. <https://www.who.int/life-course/publications/en/>
4. Gordis L. Epidemiology: Elsevier/Saunders; 5th edition, 2014.
5. National Strategic Plan on HIV and AIDS 2011-2015, Ministry of health Malaysia 2011
6. Global AIDS Response Progress Report 2014, Ministry of Health
7. WHO Global Vaccine Action Plan 2011-2020, World health Organization 2012.
8. Ministry of Health Malaysia: <http://www.moh.gov.my>

Assessment Methods

Continuous assessment: 100%

Final Examination: -

➤ MWA8039: Social and Behavioural Sciences in Public Health Practice (3 credits)

Learning Outcomes

At the end of this course, the candidate is able to:

1. Analyse determinants of public health issues using core principles of social and behavioural science within local and international context.
2. Organise social and behavioural preventive intervention on current public health issues to influence behavioural change among target groups.
3. Evaluate the effectiveness of the social and behavioural preventive interventions of targeted groups.

Synopsis

This course covers essential content in addressing social and behavioral science concepts for application in public health practices. Material will address philosophies, theories and models underpinning social and behavioural sciences. The course will focus on four health domains, incorporating current social and behavioural sciences approaches: nutrition, HIV/ AIDS, illicit drug use and adolescent risk behaviour. Community engagement activities provide the opportunity to apply

learning to real life situations, and written assignments provide an opportunity to synthesize lectures, readings, and activities into intellectual and creative documents.

Main References

1. L. Kay Bartholomew et al. 2011. Planning Health Promotion Programs: An Intervention Mapping Approach. 3rd ed. Jossey-Bass.
2. Hinote, B.P. and Wasserman, J.A., 2019. Social and behavioral science for health professionals. Rowman & Littlefield Publishers.
3. Orcher, L.T., 2016. Conducting research: Social and behavioral science methods. 2nd ed. Routledge.
4. Anne-Marie Barry, Chris Yuill. 2012. Understanding the Sociology of Health. 3rd ed. SAGE Publications Ltd.
5. Glanz, K. and Bishop, D.B., 2010. The role of behavioral science theory in development and implementation of public health interventions. Annual review of Public Health, 31, pp.399-418.
6. Graham Scambler. 2008. Sociology as Applied to Medicine (6th edition). Elsevier Health Sciences.
7. Theo Stickley. 2008. Learning about Mental Health Practice. John Wiley and Sons.
8. Lawrence S. Neinstein. 2007. Adolescent Health Care: A Practical Guide. Lippincott & Wilkins.
9. Sankar, A., Nevedal, A., Neufeld, S., Berry, R. and Luborsky, M., 2011. What do we know about older adults and HIV? A review of social and behavioral literature. AIDS care, 23(10), pp.1187-1207.
10. Robinson, S.M. and Adinoff, B., 2016. The classification of substance use disorders: Historical, contextual, and conceptual considerations. Behavioral Sciences, 6(3), p.18.

Assessment Methods

Continuous Assessment 100%,
Final examination: -

➤ MWA8040: Public Health Attachment (10 credits)

Learning Outcomes

At the end of this course, the candidate is able to:

1. Identify issues that need to be tackled by the Public Health organisation.
2. Develop solutions to the identified public health issues.
3. Develop interpersonal communication skills in establishing and maintaining relationships with the organisational staff members.

Synopsis

The Public Health Attachment is a continuation of the learning from the Professional Internship. In the Public Health Attachment candidates will be attached to a public health organisation and will function as ex-official of the organisation. The candidate will conduct activities of this organisation and will plan for the activities that are in line with the candidates learning objective. The candidate will experience the delivery of public health and working in the community.

Main References

1. Goodwin N. Leadership in Healthcare, Routledge, Abingdon, Oxford, UK 2006.
2. Harrison MI. Implementing Change in Health Systems. SAGE Publications, London, UK 2004.
3. Abdul Hamid AK. Medical Ethics, Etiquette and Law. University Malaya Press, Kuala Lumpur 2006.
4. Yadav H. Hospital Management. University Malaya Press, Kuala Lumpur 2006.
5. Ghani SN, Yadav H. Health Care in Malaysia. University Malaya Press, Kuala Lumpur 2008.

Assessment Methods

Continuous Assessment: 100%
Final Examination: -

Doctor of Public Health Programme Schedule

Part 1		Examination
Semester I	<ul style="list-style-type: none"> Four (4) core courses each of three credit hours, totalling twenty one (12) credit hours; 	(xvi) End of Semester 1 (xvii) Proposal Defence in Semester 1
Semester II	<ul style="list-style-type: none"> Three (3) core courses each of three credit hours, totalling twenty one (9) credit hours; 	(xviii) End of Semester 2
Special semester	<ul style="list-style-type: none"> Professional Internship of three (3) credits. 	(iv) Report & Presentation
Part 2	<ul style="list-style-type: none"> Public Health Attachment in semester 5 & semester 6; five credit hours for each semester, totalling ten (10) credit hours. Thesis starting in semester 3 till semester 6; totalling eighty (80) credit hours 	(v) Logbook (vi) Candidature Defence in Semester 5 (vii) Doctoral Thesis Examination Report and viva voce Registration (Admission Evaluation)

K. PATHMARAJAH MEMORIAL AWARD

The K. Pathmarajah Memorial Award is an annual award established from the income of a fund of RM10,800.00 donated by members of the Manipal Alumni Association, family and friends in memory of the late Dr. K. Pathmarajah formerly lecturer in the Faculty of Medicine.

Rules

1. The K. Pathmarajah Memorial Award shall be awarded to the best student in the Part II Examination for the Degree of Master of Anesthesiology.
2. The award shall be made by the Senate on the recommendation of the Board of Examiners for the examination concerned.
3. The award shall take the form of a gold medal up to a value of RM500.00.
4. The gold medal shall not be awarded in any academic year if no candidate is deemed worthy of the award. In such event the funds available for that academic year shall be carried forward for additional awards in any subsequent academic year if there is more than one candidate worthy of the award.

DR. RANJEET BHAGWAN SINGH AWARD

The Dr. Ranjeet Bhagwan Singh Award has been established from the income of a fund of Ringgit 5,000 donated to the University of Malaya by Dr. Ranjeet Bhagwan Singh for award to the best student in the Master of Pathology Examination.

Rules

1. The Dr. Ranjeet Bhagwan Singh Award shall take the form of a gold medal which shall be awarded annually by the Senate of the University of Malaya to the best student in the Master of Pathology Examinations.
2. The award shall be made by the Senate on the recommendation of the Board of Examiners concerned.
3. No award shall be made if there is no candidate of sufficient merit in any academic year. In such event, the fund available shall be carried forward to provide for an additional award in another year if there are more than one candidate of sufficient academic merit.
4. The cost of the award shall be met from the income derived annually from the donation.

MASTER OF RADIOLOGY PRIZE

The Master of Radiology Prize was established with a donation of Ringgit Ten Thousand from Pribumi Sdn. Bhd. and Ringgit Five Thousand from Meditel Electronics Sdn. Bhd. to the University of Malaya. The prize will be awarded annually to a student with the best overall achievement in the Master of Radiology Program based on the final examination for the degree of Master of Radiology. The cost of the prize will be met from the income derived annually from this donation.

Rules

1. The Master of Radiology Prize shall be awarded annually to one student with the best achievement in the Program based on the final examination for the Degree of Master of Radiology.
2. The award shall be made by the Senate on the recommendation of the Board of Examiners concerned.
3. A candidate who has failed in any of the Part I, Part II or Final Assessment shall not be considered for this prize.
4. The first award shall commence based on the academic achievement of the student in the examination for the 2001/2002 Academic Session.
5. The prize will be in the form of cash with a value of RM600.00.
6. No award shall be made in any academic year if there is no candidate of sufficient academic merit. In such an event, the funds available will be carried forward to provide for additional awards in any subsequent academic year where there is more than one candidate of sufficient merit.

MASTER OF MEDICAL PHYSICS PRIZE

The Master of Medical Physics Prize was established with a donation of Ringgit Ten Thousand from Primabumi Sdn. Bhd. and Ringgit Five Thousand from Meditel Electronics Sdn. Bhd. to the University of Malaya. The prize will be awarded annually to a student with the best overall achievement in the Master of Medical Physics Program based on the final examination for the degree of Master of Medical Physics. The cost of the prize will be met from the income derived annually from this donation.

Rules

1. The Master of Medical Physics Prize shall be awarded annually to one student with the best achievement in the Program based on the final examination for the Degree of Master of Medical Physics.
2. The award shall be made by the Senate on the recommendation of the Board of Examiners concerned.
3. A candidate who has failed in any of the Semester I or Semester II Examination shall not be considered for this prize.
4. The first award shall commence based on the academic achievement of the student in the examination for the 2001/2002 Academic Session.
5. The prize will be in the form of cash with a value of RM600.00.
6. No award shall be made in any academic year if there is no candidate of sufficient academic merit. In such an event, the funds available will be carried forward to provide for additional awards in any subsequent academic year where there is more than one candidate of sufficient merit.

DR. JOHN BOSCO AWARD

The John Bosco Award is an annual award established from the John Bosco Memorial Fund which was started with donations from family and friends of the late Professor John Bosco, former head of the Department of Medicine.

Rules

1. The John Bosco Award is to be given to the best and most worthy candidate who passes the part II and final examination for the degree of Master of Internal Medicine. He or she must not fail in any section of the exams clinical or written and the candidate should show consistent performance through his or her training.
2. The award shall be in the form of a book prize and the total value of RM2000.00.
3. Dr. John Bosco award shall be made on every session by the Senate on the recommendation of the Board of Examiners concerned.
4. The award may be withheld if no candidate is deemed to be of sufficient merit in any academic year. In such event, the fund shall be carried forward to provide for an additional award in another year if there is more than one candidate of sufficient academic merit.

DR. WU LIEN-TEH AWARD

The Dr. Wu Lien-Teh Award was established with the sponsorship by The Dr. Wu Lien-Teh Society, Penang which conducted research and supported activities to appreciate the contribution of Dr. Wu Lien-Teh. This includes organizing lectures, seminars and conferences related to the work of Dr. Wu Lien-Teh especially in the field of public health. This award is intended to give recognition to the best candidate for the Doctor of Public Health program in University Malaya.

Rules

1. The Wu Lien-Teh Award shall be awarded annually to one student with the best achievement in the Program based on four domains; (1) Leadership, (2) Community engagement, (3) Academic Standing and (4) Professionalism;
2. The candidate obtains the highest marks and not less than 65% of the evaluation marks for the entire prescribed domain;
3. Candidates graduate in a period not exceeding eight (8) semester from the date of commencement of candidate registration;
4. The prize will be in the form of cash with a value of RM1,000.00, medal and certificate.
5. The award shall be made by the Senate on the recommendation of the Board of Examiners concerned.
6. No award shall be made in any academic year if there is no candidate fulfilling the criteria.

DR. LIEW SU-MAY AWARD

Dr. Liew Su-May Award is established as an award to the candidates in the final year of the Master of Family Medicine program for the best research project.

The award is sponsored by a family member of the late Dr. Liew Su May to appreciate her contributions and services in medical research. Prizes in the form of cash with a value of One Thousand Malaysian Ringgit (RM 1000.00) are given to eligible candidates at each academic session.

REGULATIONS

The Award is given subject to the following conditions:

- (1) This prize is awarded in each academic session to one candidate with the best research report for the Master of Family Medicine program;
- (2) The candidate has passed the assessment for the research report and obtained the highest score based on the criteria set;
- (3) In a situation where there are more than two (2) eligible candidates, the Faculty may use its discretion to recommend only one candidate who is eligible to receive the award;
- (4) The award will not be awarded if there is no candidate who considered eligible to receive the award in any academic session;
- (5) The award is in the form of cash with a value of One Thousand Malaysian Ringgit (RM 1000.00) and an award certificate.
- (6) This award shall be awarded by the Faculty of Medicine upon the approval of the selection committee for the Master of Family Medicine program;
- (7) Award for recipients will be provided by the sponsor.

1	TAN SRI DANARAJ MEDICAL LIBRARY
2	IMAGING LABORATORY
3	MULTIDISCIPLINARY LABORATORIES
4	CLINICAL SKILLS LABORATORY
5	COMPUTER LABORATORIES
6	MEDICAL ILLUSTRATION AND MULTIMEDIA DEVELOPMENT UNIT
7	ANATOMY RESOURCE
8	CENTRAL PATHOLOGY MUSEUM
9.	CENTRE POINT
10.	THE CUBE

1. TAN SRI DANARAJ MEDICAL LIBRARY



SERVICES

Academic Services Tan Sri Danaraj Medical Library

The Medical Library on the 3rd floor of the faculty contains around 100,000 volumes and subscribes to around 2,000 current journals. An extensive collection of reference works printed indexing and abstracting services are maintained. It permits access to a number of databases both on-line and on compact disk in the various fields of medicine and allied health care. In addition, the library offers cassette-tape, tape-slide, video-viewing and discussion room facilities, inter-library loan, photocopying and document binding services. Branch libraries are at the Klang and Kuala Langat District Complexes. These libraries aim to provide good quality and friendly service in a pleasant environment. Care of all library material is essential to maintaining this standard. Instructions regarding the use of facilities should be obtained from library staff.

The Main UM Library situated in the main campus contains more than 1 million volumes, a microfilm processing unit and photostating facilities.

Library times:

Mon-Fri: 0800 – 1700 hr

2. IMAGING LABORATORY

Imaging Laboratory



The objective of the Medical Imaging Programme is to expose the students to every phase of medical imaging and encourage a disciplined approach to problem solving. The four-year program is structured to introduce each medical imaging subdivision. Basic understanding of individual techniques is emphasized, followed by hands-on experience aimed at challenging the student to accept increasingly greater responsibilities as the training program progresses in the imaging laboratory (College of Radiography) and Biomedical Imaging Department. In addition to conventional

radiography and nuclear medicine, training will be available in computer sciences, related imaging technologies, angiography, and interventional radiography. Equipment, facilities, and personnel are available to develop expertise in all areas of medical imaging. The Biomedical Imaging Department have:



Mobile X-ray

6 sets of AMX 4 Plus
3 sets of GE AMX 4 wifi digital



General Radiographic Machines

Room 1 to Room 6 = DRX Evolution Carestream



3 MRI scanners:

1. GE 3 T SIGNA with HIFU
2. GE 1.5 T SIGNA
3. Siemens MAGNETOM C 0.35 T Open MRI



Mammography

Siemens Mammomat 3000 Nova CR

Siemens Mammomat Novation DR

3. MULTI-DISCIPLINARY LABORATORIES

A special facility at FOM is the multidisciplinary laboratories commonly known as the MD Labs (I and II). As their name implies, these labs serve various purposes which include wet and dry laboratory practicals, tutorials, self-directed learning stations, structured paraclinical examinations as well as for tutorial and self learning. It also serves as a home-based for the students.

4. CLINICAL SKILLS LABORATORIES

The Clinical Skill Laboratory (CSL) of Faculty of Medicine provides facilities for the teaching of clinical skills and procedures. It is equipped with a wide range of simulators. The centre allows medical and paramedical students and doctors to use these simulators for learning and practicing the clinical skills and procedures in a safe, controlled environment.

For detail information check its webpage: <http://www.ummc.edu.my/csl>.



5. COMPUTER LABORATORIES

The computers laboratories equip with a total of 90 computers are available to students of UMMC for various computer-aided learning programmes. These laboratories are opened up to 5:00 pm on working days.



6. MEDICAL ILLUSTRATIONS AND MULTIMEDIA DEVELOPMENT UNIT

This unit is a centre for the production of media and resources to support teaching and research at the faculty. Comprehensive photographic and graphic services are offered as well as a fully equipped video unit. Other services include management of the Faculty's lecture theatres and audiovisual equipment.

7. ANATOMY RESOURCE CENTRE

The Anatomy Resource Centre (ARC) has been designed to emphasise clinically relevant anatomy and stimulate 'active learning' in students in a pleasant conducive environment. Although designed as a multidisciplinary resource primarily for medical students, it also serves the needs of dental students and others from the allied health sciences as well as postgraduate health professionals. In addition, the ARC plays a very vital role in educating the public about the importance of anatomy in clinical medicine (see below).



Key features include potted and plastinated cadaveric specimens, a range of diagnostic images and clinical scenarios quizzes. In addition, activity stations have been designed to focus on interactive learning through multimedia computers, educational anatomy software/ medical websites as well as anatomy videotapes. Dedicated timetable slots in the Phase I medical course encourage self-learning in the ARC by medical students. All regular ARC users are issued with security smart cards to enter and exit the centre. User profile of the ARC is continuously recorded and analysed from computerised door entry records. Student perception of ARC educational value is assessed regularly through feedback questionnaires surveys.

8. **CENTRAL PATHOLOGY MUSEUM**



9. **CENTRE POINT**

Level 4, Faculty of Medicine



10. **THE CUBE**

Level 4, Faculty of Medicine



1	ACCOMMODATION
2	SCHOLARSHIP & SPONSORSHIP UNIT (UBT)
3	UM CLINIC
4.	UM MEDICAL CENTRE
5.	STUDENT COUNSELING SERVICES
6	KOMPLEKS PERDANASISWA
7.	MOSQUE
8.	PHARMACY
9.	BANKING FACILITIES
10.	LIBRARY

1. ACCOMMODATION

The Ibnu Sina Residential College houses 700 Faculty of Medicine students. A branch hostel in Klang, next to the Hospital is specially for medical students in Stage 3. Full board and lodging is provided at reasonable rates.

Further information for on-campus or off-campus accommodation can be obtained from the Student Affairs Section, UM.

Contact Number: 03-79673216
Email: hep_penginapan@um.edu.my

2. SCHOLARSHIP & SPONSORSHIP UNIT (UBT)

This unit, located in the Academic Administration and Services Centre, UM handles applications for scholarship/loans from national, state and statutory bodies, including private companies and philanthropic organizations.

Contact Number: 03-79676276

3. STUDENT HEALTH CLINIC

This service is available to all students throughout the year. The clinic is situated at:

UM Clinic
Bangunan Siswarama
Faculty of Arts and Social Science
Universiti Malaya
50603 Kuala Lumpur

Contact Number: 03-79676445
Email: kkpum@um.edu.my
Mon-Fri: 0800 – 1700
No service on Saturday, Sunday/ Public Holiday

4. UM MEDICAL CENTRE

A 24-hour emergency medical service is available to all UM students at the Accident & Emergency Unit of the UM Medical Centre.

5. STUDENT COUNSELING SERVICE

A confidential counseling service available for all UM students, is offered by the Psychology Management & Counseling Section, which is situated at the Perdanasiswa Complex.

The UM Medical Center provides an added counseling service for its students. For further information, please refer to current faculty notices on Counseling Service.

Contact Number: 603 79673244/ 2099

6. KOMPLEKS PERDANASISWA

Foodstuff, souvenir shop and electronic accessories, Automated Teller Machine (ATM), Gazebo, and Speaker Corner are available at Perdana Siswa Building.

7. MOSQUE

Masjid Al-Rahman is situated at the main entrance to UM. A *surau* is situated adjacent to the hospital. A newly built *surau* is situated in the Faculty of Medicine at level 4 between the Department of Anatomy and Molecular Medicine.

8. PHARMACY

These shops are available on ground floor at Kompleks Kesihatan Wanita dan Kanak-Kanak (KWKK).

9. BANKING FACILITIES

A CIMB auto-teller machine is available on the ground floor of the main hospital block. Bank Islam is situated on the ground of new High Impact Research building in the campus.

10. LIBRARY



The University of Malaya Library encompasses a network of libraries and through this network the Library is able to provide comprehensive services and facilities using the discipline-based approach.

Through the Library's home page at <http://umlib.um.edu.my>, one is able to explore the multitude of services as well as the various facilities available to the users. The collection within the Library has been developed in line with the teaching, learning and research needs of the University. The Library now holds more than 1.4 million titles with over 2.1 million items in various formats. In addition to that the Library provides access to more than 85 online databases comprising of more than 46,000 e-journal titles and more than 150,000 e-book titles.

Librarian's Office
Level 3, Central Library
University of Malaya
50603 Kuala Lumpur
Tel: +603-7967 3206

NEW BOOKS DISPLAY

Our most recently new books displayed at the strategic corner. You are welcome to browse this selection and feel free to borrow material from this corner.

- **LOCATION : LEVEL 1**



THESIS & DISSERTATION



This collection contains articles, books, research syntheses, conference papers and technical reports, newspapers in microfiche & microfilm format. The collection available at the Central Library.

- **LOCATION : LEVEL 2**

REFERENCE



Reference sources such as dictionaries, encyclopedias, handbooks, directories and resource guides to research are available.

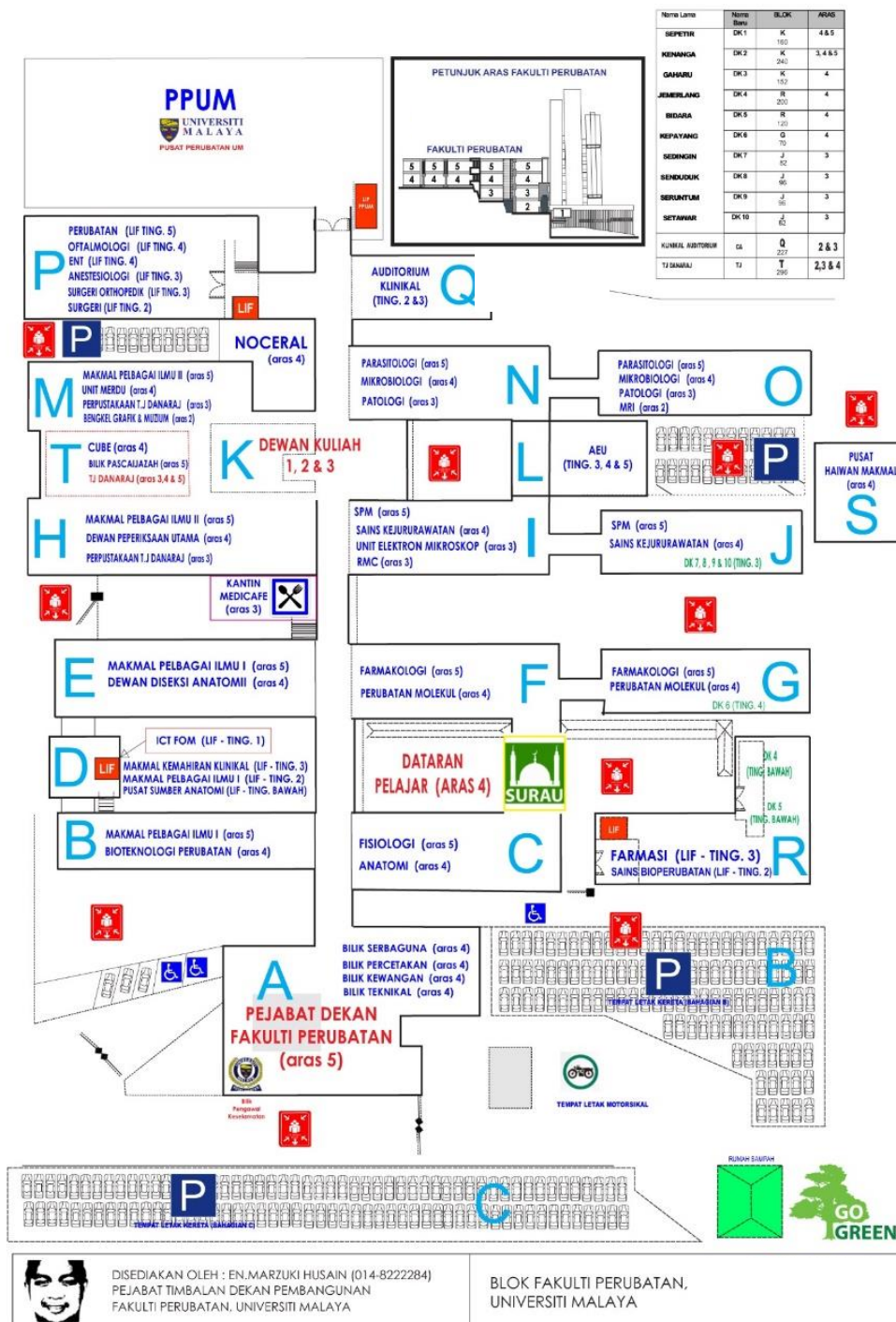
- **LOCATION : LEVEL 3**

VIDEO & AUDIO



The Universiti Malaya Library has a collection of media to support research and teaching and learning. Among the collections in the media unit are VHs, CDs, black plates, blu-rays. There is a collection that can only be used in the library using the equipment provided. In addition, non-academic materials such as movies can be borrowed according to loan eligibility

- **LOCATION : LEVEL 4**







UNIVERSITI MALAYA

THANK YOU
PREPARED BY;

POSTGRADUATE SECTION, DEAN'S OFFICE

FACULTY OF MEDICINE
UNIVERSITI MALAYA